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ABSTRACT

This document contains the second of five volumes reporting the activities and results of a career education evaluation project conducted to accomplish the following two objectives: (1) to improve the quality of evaluations by career education projects funded by the United States Office of Career Education (OCE) through the provision of technical assistance to fifteen of these projects; and (2) to identify, as a result of this technical assistance effort, a field tested model which can be used by other career education projects funded by OCE in future evaluation efforts. This volume contains detailed information about the project, the evaluation design, and the results of the evaluation. It is divided into the following chapters: (1) an introduction providing background information and a summary of the project; (2) a summary of the evaluation design; (3) a description of the context in which the career education projects were implemented, including community characteristics, school district characteristics, and project summaries; (4) descriptions of all respondents (students, teachers, counselors, and principals); (5) an examination of the implementation and process of career education across fifteen projects; and (6) the results of the application of three different evaluation models. Appended are summaries of the fifteen local evaluations, a summary of the technical assistance provided by the National Testing Service, and all the instruments used in the study. (BM)

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JUNE 1978

TECHNICAL ASSISTANCE IN EVALUATING CAREER EDUCATION PROJECTS

Contract 300760312

FINAL REPORT

VOLUME II

FINAL CAREER EDUCATION EVALUATION REPORT

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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PREFACE

This report has been prepared pursuant to the requirements of DHEW/USOE Contract Number 300760312, *Technical Assistance in Evaluating Career Education Projects*, for the Office of Career Education. This contract was awarded to National Testing Service, Inc., (NTS) on June 21, 1976, to accomplish the following two objectives:

1. To improve the quality of evaluations conducted by OCE-funded career education projects through the provision of technical assistance to fifteen of these projects.
2. To identify, as a result of this technical assistance effort, a field tested model which could be used by other career education projects funded by OCE in future evaluation efforts.

Contractors are encouraged to provide objective, independent evaluations; therefore, none of the results or positions presented in this report necessarily reflect official Office of Career Education policy.

This is Volume II of the five volumes comprising the common Career Education Evaluation Final Report. The volumes include the following:

Volume I: Executive Summary. This volume contains highlights of the study design and results.

Volume II: The Career Education Evaluation Final Report. This, the main body of the report, contains detailed information about the background of the evaluation, the evaluation design, and the results of the evaluation. Three appendices are included, as well: (1) summaries of the fifteen local evaluations; (2) a summary of the technical assistance provided by NTS; and (3) all instruments used in the study.

Volume III: The Career Education Instrumentation Substudy. This volume contains the rationale, procedures, and results of the outcome and process instrument validation and construct definition activities undertaken by NTS under this contract.

Volume IV: Turnkey Manual for Evaluating Local Career Education Projects. The Turnkey Manual was prepared for distribution to participating projects and contains the necessary information for longitudinal continuation of this evaluation at the project level.

Volume V: The Career Choice Substudy. This volume contains the design and results of a study of the relationships of career education to secondary students' career choices.

In addition to these five common report volumes, NTS prepared unique local evaluation reports for each of the fifteen participating projects.

ACKNOWLEDGEMENTS

Completing this evaluation was not easy, even though we received the help of many people who gave much of their scarce time and abundant knowledge. This evaluation had to traverse much previously uncharted territory; without the help of numerous guides, guards, and bearers the evaluation team might never have reached its goal.

We owe special thanks to the local project staffs. Hard-pressed by their own tasks they still put up with our problems, showed forebearance over delays, and were always ready to provide assistance and information when necessary. Even though we are prevented by concerns of preserving project anonymity from thanking all these people by name, the assistance they offered is worth many extra tips of the hat.

Equally important are the thousands of students, teachers, counselors, and principals who provided the substance for this evaluation. These are the nameless, unsung heroes to whom any evaluator owes special gratitude. We owe more than most; the burden imposed was heavy, yet the response was satisfyingly high.

Our thanks go not only to those at the local level but also to those in the federal government who, with more direct knowledge of our efforts, still provided encouragement and assistance, along with gentle prods and remonstrances when necessary. Our OCE project officer, Terry Newell, deserves to be singled out for praise. Despite an already loaded schedule, he was always available when needed. His assistance took many forms; he was involved extensively in evaluation design development, instrument selection and preparation, selection of analysis strategies and techniques, and reviewing draft reports. His aid in completing the process instruments and shepherding them through OMB went far beyond that required by his role. Kenneth B. Hoyt, Director of the Office of Career Education, not only provided general support for our efforts but also gave direct and useful assistance in preparation of process instrumentation. Gloria Butler and Prentice Echols, monitors of the projects in this study, helped keep the projects and the evaluation team moving toward the same point.

Norman Audi, Peggy Saunders, and Bob Rothenberger of the OE contracts office, without whom the evaluation would not have been completed, deserve our thanks as well.

Alice Scates from OPBE and Robert Wise, Lois-ellin Datta, Carlyle Maw, Ron Bucknam from NIE, and Jerry Walker of the Ohio State Center for Vocational Education provided continued assistance in all stages of this evaluation and attended a number of project conferences. They offered us many useful ideas and served as a valuable sounding board for some of ours. Lane Muraskin of NIE assisted in the conceptualization and analysis of the career choice data presented in Volume V of this report.

Preparation of the process forms was assisted by Don Phillips of the National Assessment of Educational Progress and by Jay Davis of the Research Triangle Institute's National Longitudinal Study of the High School Class of 1972. Dale Holden of the Redlands II School District of South Carolina graciously allowed us to pilot our Student Information Form in his district.

Finally, of course, we offer our sincere appreciation to those at NTS who participated in the various stages of this project. Special thanks go to Helmuts Feifs, Dick Rohlf and Joan Troy for their timely and valuable help in writing this report. Steve Davis, Blyth Gabriel, Keith McNeil, Jack Bailey, Carol Hill, and Bernie Schmidt all offered professional assistance when needed. Former NTS staffers Robert Pinnell, Darrell Myrick, Bill Katzenmeyer, Henri Belfon, and John Goode made important early contributions. Wayne Parks and Lynn Cowell kept us within budget.

This was a data-rich evaluation. The tables in this and the other volumes give but a hint of the time and effort needed to produce them. To Frances Pendergrass and Steve Rihner, who supervised and performed much of the data reduction and analysis, we owe many thanks. To those who assisted them, Dana Hardwick, Jeff Forrest, Steve Lesh, Bob Fritz, and Norm Friberg we offer our gratitude as well. Elizabeth Goodrich provided valuable assistance on unique project data. An efficient team of data editors included Gloria Ripperton, Victoria Brighton, Betty Hill, Florence Dickerson, and Mary Cook.

Preparing the five volumes of this report, as well as unique reports for each of the participating projects, was the responsibility of Pauline Matson, NTS's Director of Support Services. She was ably assisted by Dianne Gupton, Barbara Leonard, Deborah Parker, and Mary Dickens, Ray Alderson, Eleanor Johnson, Judy Smith and, during earlier drafts, Phyllis Thomas, Linda Conly, and Brenda Scarborough. Debbie Ward and Bill Roycroft had the unenviable task of making copies of all these reports. Skip Anderson did most of the design work.

To all of those named above and, especially, to those we could not name, we offer a most sincere, "Thank You."

A. Jackson Stenner
Robert F. Baker
Ernest W. Strang

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INTRODUCTION

The current emphasis on career education began soon after January 21, 1971. Addressing the National Association of Secondary School Principals in Houston, Texas, Sidney P. Marland, Jr., then Commissioner of Education, presented career education as an idea and a high-priority policy for educational reform. Many observers cite this as the beginning of the "movement" (Marland, 1974). Although Marland is responsible for generating the current intensity of interest in career education, he also channeled and focused diverse forces which had been moving in this direction for many years (Hoyt *et al*., 1972, p.51). Edwin L. Herr suggests that "While this speech and the many which followed in rapid succession to various professional, civic, and industrial groups gave visibility and credibility to Career Education, neither the term nor the concepts it embraced were without precedent in American educational history." (Herr, 1976, p.5).

The antecedents of current career education efforts can be traced to the early decades of this century. Addressing a national joint meeting of the National Society for the Promotion of Industrial Education and the National Vocational Guidance Association in 1914 in Grand Rapids, Michigan, John Dewey said a democratic education required no "separation of vocational training from academic training." The keynote address at this convention called for a refocusing of the schools to provide each learner with a "conception of his industrial obligations and opportunities." Edwin L. Herr, who has constructed a synthesis of the evolution of vocational education into what is now the career education concept, has traced the early impetus of career education to this convention (Herr, 1972).

A more recent antecedent in the evolution of career education was the legislation of the 1960's. The passage of the Manpower Development and Training Act of 1962 demonstrated recognition of the need for retraining adults as technology and the economy change (Hoyt, _et_ _al_., 1972, p.60). The change in emphasis from the skill needs of the labor market to the employment needs of individuals was solidified with passage of the 1963 and 1968 vocational education legislation (Evans, _et_ _al_., 1968).

Late in the fall of 1970, following his appointment as Commissioner of Education, Marland was asked to give immediate attention to increasing the place of "vocational education" in the federal role with no increase in the budget. This request resulted in an idea of a total reform embracing vocational education as a significant element but also relating "occupational aspects of human development to all levels of learning and all relevant parts of academic instruction" (Marland, 1974, p.8).

The administrative changes that followed required reorganization of the Office of Education. This reorganization, which began in 1971 and culminated with the establishment of the Office of Career Education in 1974, was initiated with vocational education discretionary funds. The Education Amendments of 1972 reinforced new career education emphases in the Office of Education. The Bureau of Occupational and Adult Education was established "with its own Deputy Commissioner and specific responsibility for numerous vocational, technical, occupational, manpower, and adult education programs. In particular, Career Education was identified as one of its responsibilities" (Herr, 1976, p.11). Career education soon received its own funds and an identifiable organizational base:

> On April 12, 1974, Dr. Kenneth B. Hoyt was appointed Associate Commissioner for Career Education. On August 21, 1974, PL 93-380, Education Amendments of 1974, was passed which for the first time authorized the Commissioner of Education to expend funds (up to 15 million each fiscal year until June 30, 1978) in direct support of Career Education. This legislation also authorized the establishment of the Office of Career Education to be headed by a Director who shall report directly to the U.S. Commissioner of Education. In addition, the legislation authorized the appointment of a National Advisory Council for Career Education (Herr, 1976, p.14).

Using the 10.135 million dollars, which the Congress has appropriated annually for Career Education since the passage of PL 93-380, the Office of Career Education has funded the types and numbers of projects shown in Table 1.1.

TABLE 1.1

Numbers of Career Education Projects Funded Under Section 406, Title IV, P. L. 93-380*

CATEGORY	FY 1975	FY 1976
1--Activities designed to effect incremental improvements in K-12 career education programs.	45	32
2--Activities designed to demonstrate the most effective methods and techniques in career education in such settings as the senior high school, the community college, and institutions of higher education.	7	8
3--Activities designed to demonstrate the most effective methods and techniques in career education for such special segments of the population as handicapped, gifted and talented, minority, low income, and female youth (FY 1975)... and to reduce sex stereotyping in career choices (FY 1976).	12	14
4--Activities designed to demonstrate the most effective methods and techniques for the training and retraining of persons for conducting career education programs.	4	4
5--Activities designed to communicate career education philosophy, methods, program activities, and evaluation results to career education practitioners and to the general public.	12	13
6--Activities designed to accomplish a survey and assessment of the current status of career education programs, projects, curriculums, and materials in the United States, as required under sub-section (e) of Section 406 of Public Law 93-380.	1	0
7--Projects for the development of State plans for implementation of career education in the local education agencies of the States, under the provisions of sub-section (f)(2) of Section 406 of P.L. 93-380.	0	47
TOTALS	81	118

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*"Profiles of Career Education Projects--First Year's Program, Fiscal Year 1975 Funding." Prepared for the Office of Career Education, USOE, by the Center for Vocational Education, the Ohio State University, 1975.

"Profiles of Career Education Projects--Second Year's Program, Fiscal Year 1976 Funding." Prepared for the Office of Career Education, USOE, by Pacific Consultants, Washington, D.C., 1976.

The Rationale For Career Education

In 1975, Hoyt listed eleven conditions calling for educational reform. These included (in somewhat abbreviated form):

1. Too many persons leaving our educational system are deficient in the basic academic skills.

2. Too many students fail to see meaningful relationships between what they are being asked to learn in school and what they will do when they leave the educational system.

3. American education, as currently structured, best meets the educational needs of that minority of persons who will someday become college graduates.

4. American education has not kept pace with the rapidity of change in the postindustrial occupational society. Both the boredom of the overeducated worker and the frustration of the undereducated worker have contributed to growing worker alienation in the total occupational society.

5. Too many persons leave our educational system at both the secondary and collegiate levels unequipped with the vocational skills, the self-understanding and career decision-making skills, or the work attitudes that are essential for making a successful transition from school to work.

6. The growing need for and presence of women in the work force has not been reflected adequately in either the educational or the career options typically pictured for girls enrolled in our educational system.

7. The growing needs for continuing and recurrent education of adults are not being met adequately by our current systems of public education.

8. Insufficient attention has been given to learning opportunities which exist outside the structure of formal education and are increasingly needed by both youth and adults in our society.

9. The general public, including parents and the business-industry-labor community, has not been given an adequate role in formulation of educational policy.

10. American education, as currently structured, does not adequately meet the needs of minority or economically disadvantaged persons in our society.

11. Post high school education has given insufficient emphasis to educational programs at the sub-baccalaureate degree level (1975, pp. 1 and 2).

Hoyt argued that career education could provide "an action program of educational reform" (1975, p.2) to help solve these problems. To be sure, the list of those eleven conditions was preceded by the following paragraph:

> Career education represents a response to a call for educational reform. This call has arisen from a variety of sources, each of which has voiced dissatisfaction with American education as it currently exists. Such sources include students, parents, the business-industry-labor community, out-of-school youth and adults, minorities, the disadvantaged, and the general public. While their specific concerns vary, all seem to agree that American education is in need of major reform at all levels. Career education is properly viewed as one of several possible responses that could be given to this call (1975, p.1).

There is abundant evidence pointing to the expectations of our society for schools and colleges to equip young persons for successful entry into the world of work. A Gallup survey of attitudes toward the public schools revealed overwhelming approval for the statement that schools should give more emphasis to a "study of trades, professions, and business to help students decide on their careers" (Kappan, Sept., 1973, pp. 38-42).

Also noteworthy is a survey by the American College Testing Program in 1973, in which more than three-fourths of high school juniors surveyed expressed an interest in additional help with their career planning. In fact, career planning headed the list of preferences on the "need for help" attitude survey (Marland, 1974, p. 15).

In addition, an increasing number of parents, employers, students, and educators have called for more emphasis on the three Rs. This "back to basics" movement has not clashed extensively with career education, unlike the experience of many other educational innovations, though the Council for Basic Education has been somewhat critical of the way many career education programs are implemented.* Clashes with career education have been infrequent primarily because career educators, in general, perceive their efforts to be in harmony with basic skills. By motivating students to learn by relating instruction to the world of work, career educators assume that students will learn to read, write, and do arithmetic better. Further, since the Office of Career Evaluation's (OCE) view of career education is that it is not to be an add-on, but rather is to be infused into the total curriculum, no time needs to be taken from teaching basic skills.

Current Status of Career Education

The rapidity with which career education has burgeoned across the nation and impacted upon every educational level illustrates the popularity of the concept. Appropriation of state monies by state legislatures for the support of career education, numerous professional publications dealing with career education, and the creation of professional staff positions in career education by many state and territorial educational agencies are only a few of the indications that the concept of career education may not be just a passing fad.

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*National School Board Association. "Career Education." Research Report 1977-3 p. 19.

Developmental efforts sponsored by the Office of Career Education have been complemented by work done at the National Institute of Education, numerous private sector firms, and hundreds of school systems throughout the country. Further, through experimental programs launched by the Office of Education and the National Institute of Education, business, industry, and labor are searching for their roles and responsibilities in implementing the career education concept.

In the past year, two significant events heralded the coming-of-age of career education in the United States. First in Houston, Texas, during December, 1976, over 8000 people representing individual schools, school districts, State departments of education, business, labor, industry, the federal government, and the R & D community, met to discuss the evolution of the career education concept, learn from one another about new approaches and ideas, and plan for further expansion of career education in their home districts and elsewhere. Second, the passage of the "Career Education Incentive Act" by overwhelming margins in the House and Senate and its signature into law, suggested the presence of wide-spread support for career education.

Career Education Concepts

Kenneth Hoyt once suggested that career education might best be described as a "concept in search of a definition" (Hoyt _et al_., 1973, p.1). Although there is now broad agreement at the general level, some disagreement continues over specifics of a conceptual framework. Former Commissioner Marland and his Washington staff deliberately avoided prescribing a definition because they saw no value in having a single official designation; further, the Educational Amendments of 1974 stated that the federal office should not try to require the implementation of a single view of career education. It was felt that the specifics should come from the individuals who would design and implement the programs.

As a move toward consensus on the definition of career education, Hoyt submitted the following definition in An introduction to Career Education: A Policy Paper of the U.S. Office of Education:

> 'Career education' is the totality of experiences through which one learns about and prepares to engage in work as part of her or his way of living. "Career," as defined here, is a developmental concept beginning in the very early years and continuing well into the retirement years. 'Education,' as defined here, obviously includes more than the formal educational system. Thus this generic definition is purposely intended to be a very broad and encompassing nature. At the same time, it is intended to be less than all of life or one's reasons for living (1975, pp. 2-3). In addition to such definitions one can find other and less favorable ones.

Grubb and Lazerson (1975), for example, regard career education as "primarily a renewal and expansion of vocational education, a movement that has previously proven itself ineffective in reducing the gap between rich and poor, in enhancing school learning, in solving social and economic problems, and in improving the status of physical work" (pp. 472-473).

A few proponents' formulations of career education tend toward the inclusive view that "career education is education." From one perspective this global view is quite correct; as a different teaching methodology based on a different perception of what will motivate children to learn in a school setting, a fully implemented and infused career education curriculum does indeed become education itself. Yet, in the world as it is, with educators, parents, and students possessing their own images of what education should be, it is doubtful that such full implementation does exist. It should be noted that this inclusive view does not reflect the position of OCE. OCE's view is that career education is only one part of a total educational package. In testimony before a congressional subcommittee, Hoyt stated the following:

> Career education's basic contentions are that: (a) *one* of the basic goals of American education should be to prepare persons to work; (b) that goal is not now being adequately met; and (c) student needs with respect to this goal are both changing and growing to such an extent that this reform is badly needed. Career education does *not* claim that "education as preparation for work" is either the *only* goal of American education or necessarily its most important goal. We week neither to attack nor to detract from other basic goals of American education. Rather, we seek only to bring a proper emphasis to the goal of "education as preparation for work" (1977, p. 2).

If the enunciated objectives and underlying concepts of career education are examined, those characteristics which set it apart become clearer. Career education goals are to be applicable whenever students leave the formal educational system, not a particular school. For some this may be applicable as they leave secondary schools. It will pertain to others upon completion of postsecondary training programs.

Hoyt states that the key objective of career education is the preparation for successful working careers of all individuals. In order to achieve this goal, classroom teachers have the responsibility of relating to the world of work the material they teach in their classes.

Students must be given the skills which will enable them to put into practice the information they absorb in abstract terms. Moreover, education should not be kept so separate from the working world that a person entering into a new career is ill-prepared to handle the human relations and distinct orientation working involves (Hoyt, 1975, pp. 5-8).

Preparation for lifetime careers cannot be provided totally within the classroom environment. As with all learning experiences, a person is exposed to a variety of working roles from family members, community, and peers during his or her entire life. Education should not be viewed in terms of a "begin and end" phase in a person's experience. The educational process cannot begin, for example, at age five and end at twenty-one. Ideally, the individual should be free to enter and leave an educational experience when it is of most value to him or her to do so. This general conceptual framework has supported a variety of goals. These goals for career education programs have originated from State school superintendents' offices, local community task forces, professional educators, and from a number of other sources, as well as the federal Office of Career Education. Goals for the elementary level (K-6) stress awareness of the many careers available, the development of wholesome attitudes of respect and appreciation for the dignity of workers, and an awareness of self in relation to occupational roles. A more concentrated exploration of the knowledge, skills, technical requirements, working conditions, and responsibilities of various career fields is reflected in most goal statements for the middle school, grades 7-9 or 7-10, evolving into more specific career preparation activities in grades 11-12.

Program developers and practitioners have formulated differing types of goals for career education -- general goals for all career education programs, more specific goals for individual State and school district plans, and general or operational intents for student behavior. In An Introduction to Career Education, A Policy Paper of the U.S. Office of Education, Kenneth B. Hoyt listed nine learner outcomes for career education (see Table 1.2). Although NTS recognizes that this list has been superseded, these outcomes were operative for the projects in this study. (The most recent formulation can be found in Hoyt, Kenneth B. A Primer for Career Education. U.S. Government Printing Office 1977. p.35).

The 1975 learner outcomes were followed by this important clarification:

> It is important to note that these learner goals are intended to apply to persons leaving the formal educational system for the world of work. They are not intended to be applicable whenever the person leaves a particular school. For some persons, then, these goals become applicable when they leave the secondary school. For others, it will be when they have left post-high school occupational education programs. For still others, the goals need not be applied, in toto, until they have left a college or university setting. Thus, the applicability of these learner outcome goals will vary from individual to individual as well as from one level of education to another. This is consistent with the developmental nature, and the basic assumption of individual differences inherent in the concept of career education (1975, p. 11).

Hoyt based his definitions and concepts about career education upon the following assumptions. First, to ensure human

Table 1.2

Office of Career Education Learner Outcomes

Career education seeks to produce individuals who, when they leave school (at any age or at any level), are:

1. Competent in the basic academic skills required for adaptability in our rapidly changing society.
2. Equipped with good work habits.
3. Capable of choosing and who have chosen a personally meaningful set of work values that foster in them a desire to work.
4. Equipped with career decisionmaking skills, job-hunting skills, and job-getting skills.
5. Equipped with vocational personal skills at a level that will allow them to gain entry into and attain a degree of success in the occupational society.
6. Equipped with career decisions based on the widest possible set of data concerning themselves and their educational-vocational opportunities.
7. Aware of means available to them for continuing and recurrent education once they have left the formal system of schooling.
8. Successful in being placed in a paid occupation, in further education, or in a vocation consistent with their current career education.
9. Successful in incorporating work values into their total personal value structure in such a way that they are able to choose what, for them, is a desirable lifestyle (1975, p. 11).

happiness, people must enjoy a feeling of self-worth in work. This feeling of worth is not limited to the sense individuals have about their skills in performing work well, but is involved in all attitudinal values and general abilities associated with productivity in our society. Second, Hoyt assumes people develop a sense of self-worth from what is observed of the character and achievements of others. When individuals feel committed to work, and accompanying this commitment they have a positive feeling toward self, the entire society, of which that person is a part, is directly affected. Third, the traditional value of the Protestant work ethic in America may not be as powerful a motivation for work as it was previously.

Evaluation of Career Education

As with any innovative program, the proper use of evaluation is essential for guiding implementation through finding strengths and weaknesses and suggesting corrective action. Career education is no exception to this general rule. The burgeoning growth of career education has made systematic evaluation absolutely necessary but, at the same time, has partially foreclosed its use. The growth has been so rapid as to prevent incorporation of many findings, and, as with any new and popular program, practitioners have been much more concerned with implementing and carrying out their efforts than with having those efforts systematically and objectively evaluated.

All of this should not imply that there is a lack of supportive evidence for the career education approach. On the contrary, evaluations have been conducted on many facets of career education, ranging from recording the enthusiastic responses of youngsters and their teachers to particular activities to carrying out highly sophisticated efforts to examine the associations of particular outcomes with particular activities. It should be noted that the results obtained have been generally positive. These evaluations have been done by private contractors and local project staff, state agency personnel, and in-house evaluators. Efforts have been sponsored by State education agencies (SEAs), local education agencies (LEAs), corporations, foundations, and the federal government.

The results of a large number of career education evaluations were summarized in a series of monographs prepared for the National Advisory Council for Career Education and published in 1976 as The Efficacy of Career Education. Reviewing the results obtained in evaluations of career awareness, academic achievement, and career decision-making, as well as other areas, the different authors generally were able to state that "the multitude of studies reviewed showed positive results" (Arterbury, et al., 1976, p. 9); "soft data have indicated that positive changes in the self-concepts and work habits of some students have taken place" (Bryant, 1976, p. 65); and "one can generalize that career education programs have the potential power to produce career decision-making effects which are specific and desirable" (Masucci, 1976, p. 88).

In short, objective evaluations are available that show reasonable levels of effectiveness of career education activities. Nonetheless, the results for career education are not yet completely in--if indeed they can ever be. Yet, as "career education develops, conceptually and programmatically, the need for effective, creative evaluation increases. This is both an exciting and a frightening prospect. It is exciting because such evaluation promises to confirm our belief in career education's strengths and give us the knowledge to make improvements. It is threatening because our knowledge about and skills in career education evaluation fall far short of our needs" (Newell, 1976, p. 2).

As Newell suggested, the "need for effective, creative evaluation increases," because the evaluation of career education is still in its infancy. While a variety of instruments, designs, and techniques have been tried, no clear consensus exists on the best approach to take. There is a need for the development of workable evaluation techniques. There is also a need for providing training and assistance to funded career education projects to enable them to mount successful evaluations. Although it may not be traditional in the social sciences to try to solve evaluation problems while the program concept and practices are still being developed, the demands being made for educational accountability require that evaluation be tackled now in career education.

In the first year of its operation, OCE tried to be responsive to evaluation needs by emphasizing the importance of evaluation to the forty-five local school system projects it supported. Project staff, however, were unable to perform sophisticated evaluations, both because they lacked the skills and funds to do so, and because reliable evaluation techniques were not available to them. To avoid a similar problem during the second and future years of its operation, OCE awarded a contract to NTS Research Corporation (NTS) in late June, 1976, to accomplish two major objectives:

1. To improve the quality of evaluations conducted by OCE-funded career education projects through the provision of intensive technical assistance to fifteen of these projects; and
2. To identify, as a result of this technical assistance effort, a field-tested model which could be used by other career education projects funded by OCE in the future.

The perceived need for objective evaluations, resulting in this report by NTS, has been further reinforced by recent criticism of career education. Grubb and Lazerson (1975, pp. 466-474) argue that even if the assumptions of supporters of career education were correct, many of the program's objectives could not be evaluated. McGowan and Cohen (1976, pp. 31-32) suggest that the "conceptual looseness" of career education, which allows the concept to mean whatever an individual desires, effectively precludes objective evaluations. Other critics suggest that particular career education activities are likely to have pernicious results or just will not work.

The need to improve the evaluation of career education programs has been expressed by the proponents of career education as well as by its critics. In an address delivered at the Commissioner's National Conference on Career Education on

November 8, 1976, Dr. Sidney P. Marland, Jr. placed the need for evaluation firmly within his set of "imperatives" for career education:

> We must assess the outcomes of career education and document the evidence that, where career education has been systematically installed, the academic growth of young people, including those in college, improves dramatically, with intrinsic motivation deriving from the learners' own reasoned application of the learning task. Most of us have been too busy implementing career education to take the pains to document for others the measurable gains (Marland, 1977, p. 15).

Marland's comments have been reinforced by the Director of the Office of Career Education, Kenneth B. Hoyt. In testimony prepared for presentation before the Subcommittee on Elementary, Secondary, and Vocational Education, United States House of Representatives, on February 9, 1977, Hoyt noted that "Evaluations of effectiveness of career education have been generally positive. Yet much remains to be done before we will be able to claim that career education has been fully validated" (Hoyt, 1977, p. 12).

This comment reiterated Hoyt's longstanding commitment to the need for evaluation. Speaking before the National Advisory Council for Career Education in July, 1976, he made the following points:

> Wherever comprehensive career education efforts now exist, there is a critical current need to engage in systematic evaluation of their effectiveness. Two factors have delayed this effort to date. First, many have pointed out that, because it is a developmental concept, the truly important long run effects of career education cannot be known for at least another 20 to 30 years. Second, much attention has been devoted to our lack of suitable instrumentation, in such domains as teacher/student attitudes, work values, decisionmaking, and self-concept, that is currently hindering our efforts aimed at short-term evaluation of career education's effectiveness. I am convinced that, while both points are valid and

> important, neither can be allowed to serve as an excuse for failing to greatly increase our attempts to evaluate current comprehensive career education efforts wherever they can be found.
>
> As a vehicle for reform of Education, career education should not be afraid to use traditional evaluative criteria - including increases in pupil achievement, in pupil attendance, and in school holding power. Of these, demonstrations of the ability of a career education approach to increase pupil achievement in the basic academic skills is, by far, the most crucial. While preliminary evidence available suggests that career education can have such an effect, this evidence is, at present, far too sparse and too susceptible to criticism for us to claim that career education, if properly applied, will produce such results. With the current strong national push toward a "back to basics" emphasis, it seems to me especially crucial that comprehensive career education efforts demonstrate that, in fact, they can serve as an effective vehicle for improving basic academic achievement (Hoyt, 1976, pp. 4-5).

Summary of the Present Study

Fifteen promising career education projects were evaluated with the technical assistance of National Testing Service. These fifteen projects were selected from among the thirty-two projects funded by OCE in FY 1976 "designed to effect incremental improvements in K-12 career education programs." As will be described in Chapter 2, these projects were not selected randomly; on the contrary, projects were chosen on the basis of their maturity and their emphasis on the OCE learner outcomes. Brief descriptions of the selected projects are in Chapter 3. A common evaluation design was developed and used in all of the projects. In addition to the common evaluation component, a unique evaluation design was developed for each project. By employing a common design for the composite of all of the projects and a unique design for each project, the continuing information needs of both individual LEA project managers and national policy-makers are met. Eight of the nine outcomes of career education have been related to procedures used in the projects. A major residual effect of the project activities is the training of participating project personnel in each of the fifteen sites in the details of the Information Based Evaluation (IBE) model, the major approach to evaluation design used in this study.*

Four major activities occurred during the project: (1) training of local project directors and United States Office of Education (USOE) personnel; (2) development of common and unique evaluation designs; (3) data collection; (4) presentation of the evaluation findings.

The initial activities of any Information Based Evaluation (IBE) efforts include extensive contact with program staff and other information users. As this evaluation effort addressed not only the information needs of OCE, but also those of fifteen local projects, this activity was more than usually complex. An initial meeting on June 24, 1976, with OCE staff was followed by a meeting of OCE staff, the fifteen local project directors, and NTS project staff in Durham, North Carolina, on July 28-30, 1976. Subsequent to this meeting, NTS project staff visited each project site to learn the unique information needs of other local participants. The results of these meetings included lists of "common" information needs, which formed the basis for the overall evaluation design, and sets of unique information needs for each site, which were subsequently incorporated into site-specific evaluation designs. The Evaluation Design Document was submitted to OCE during September, 1976, and received approval.

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*Stenner, A. Jackson. An Overview of Information Based Evaluation: A Design Procedure. Durham, N.C.: NTS, Inc. 1973.

During the first few months of the contract, much of the time was devoted to the selection of outcome instrumentation for use in the pre- and post-testing and the preparation of an Administrator's Manual for local test administrators. Prior to beginning pretesting, each local site was visited to provide technical assistance to project staff and local test administrators. These visits took place between September 13 and October 22, 1976. Pretest administration followed. More than 20,000 students, both target and comparison, enrolled in grades, 3, 5, 6, 8, 9, 10, 11, and 12, took some or all of the student battery.

Delays in receiving and then editing the data prevented beginning the pretest analysis until January, 1977. During the pretest administration, collection, and reduction activities, NTS project staff developed the student and staff background and process instruments to be used during spring testing. On December 17, 1977, the process and background justification package was submitted to OCE for approval and was later transmitted to the Office of Management and Budget (OMB). Process instrument development was aided by useful comments and criticisms by OCE and by a large number of local practitioners. Although some minor changes were requested by OMB, NTS received formal approval of the process and background instruments on April 26, just a few days before testing was scheduled to begin.

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Shortly after submission of the OMB justification package, NTS project staff began to collect the context information necessary for writing the local evaluation reports. Through the assistance of local project directors, NTS was able to develop descriptions of each community's social and economic characteristics and the characteristics of each career education program. These descriptions received local approval by June 30, 1977 and were, subsequently, incorporated into the local final reports. Brief project summaries have been included in this document and can be found in Chapter 3.

Early in January, 1977, a detailed validation study of all learner outcome instruments was initiated based on pretest results. A preliminary report on these findings was presented to a specially convened conference in Washington, D.C. on March 16 and 17, 1977. This conference was attended by OCE and National Institute of Education staff, others who have been involved in comparable evaluations, and NTS project staff. Based on comments received, NTS project staff reanalyzed the data for the validation substudy and shifted some analysis emphasis for the final report.

NTS project staff visited each site again in March or early April, 1977, in order to provide the technical assistance necessary for the learner outcome posttesting and implementation/process phases of spring data collection. As originally planned, the process instruments were to be administered to students, teachers, counselors, and principals in January, 1977. Anticipation of OMB clearance delays pushed this date back to March. These delays were longer than anticipated, printing the machine scannable forms took more time than expected, and a flurry of shipping problems occurred. The process instruments were administered finally with the learner outcome posttest. Administration of these batteries took place during May and June, 1977.

All data, including those from separately scheduled achievement tests, were not submitted to NTS until mid-August, 1977. As NTS had changed the answer sheets prior to posttesting, editing and reduction of all spring data went much more rapidly than in the fall. The great majority of all analyses were completed in November, 1977. Resolving problems associated with aggregation levels, missing data imputation, and the effects of ethnicity pushed completion of all final reports to spring, 1978.

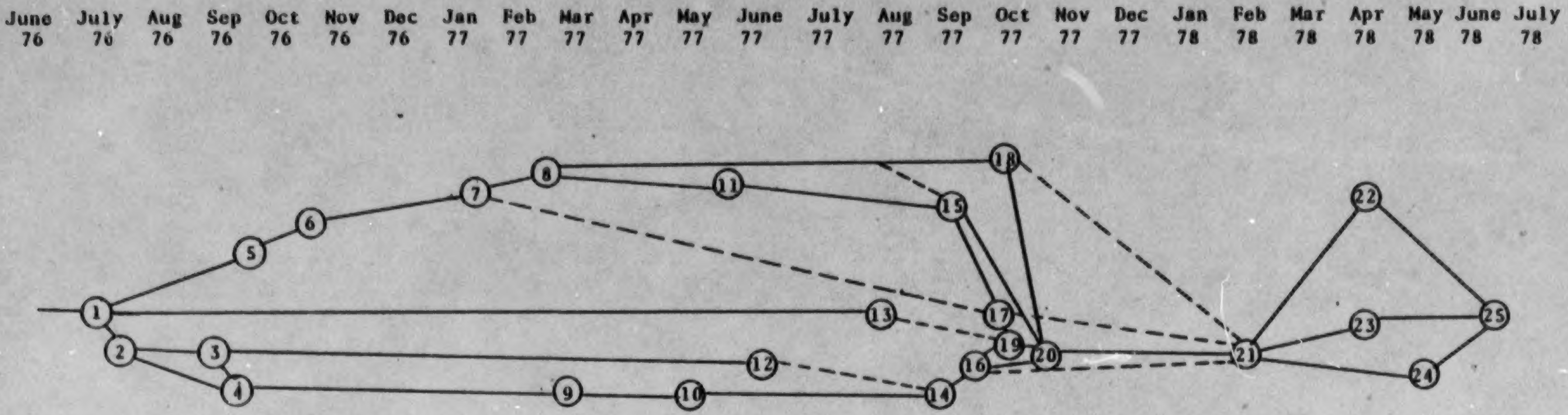
The PERT chart presented in Figure 1.1 summarizes the activity sequencing discussed in the above narrative. Table 1.3 presents a list of major milestones and the dates on which they were reached.

Organization of Volume II

In the remaining five chapters of this volume, the general flow is from description of the program to presentation of programmatic effects. Chapter 2 begins by discussing the evaluation design used in this study and explaining the rationale underlying the design. Chapter 3 looks at the contexts in which the fifteen evaluated projects exist, emphasizing background and programmatic characteristics of each, and comparing the projects to one another and to the nation as a whole on selected contextual variables. Chapter 4 presents the individual "givens" with which the projects began this academic year. Demographic and other background characteristics are discussed for each respondent group

FIGURE 1.1

PERT CHART OF MAJOR ACTIVITIES


June 76
July 76
Aug 76
Sep 76
Oct 76
Nov 76
Dec 76
Jan 77
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1. Initiate Preliminary Activities
2. Select sites and develop coding system
3. Develop local evaluation designs
4. Develop common evaluation designs
5. Select Outcome Instruments
6. Collect Pretest data
7. Receive and reduce Pretest data
8. Analyze Pretest data
9. Develop Implementation/Process Instruments
10. Collect Implementation/Process data
11. Collect Posttest data
12. Develop Context and Program Descriptions
13. Develop Turnkey Manual
14. Receive and Reduce Process data
15. Receive and Reduce Posttest data
16. Analyze Process data
17. Analyze Posttest data
18. Conduct Instrumentation Substudy
19. Complete Draft Local Reports
20. Complete Draft Common Reports and Submission of Draft Reports
21. Review Reports
22. Further analysis of Process Data
23. Further Analysis of Outcome Data
24. Further Instrumentation Substudy Analysis
25. Completion of Revised Final Report

Table 1.3

Major Milestones and Dates Completed

Contract Award	June 21, 1976
Meeting with OCE staff in Washington, D.C.	June 24, 1976
Common Design Conference	July 28-30, 1976
Local Design Conferences	August and September, 1976
Selection of Outcome Instruments and Completion of Instrumentation Readability Study	September, 1976
Development of Common Evaluation Design and Fifteen local Designs	September 15, 1976
Completion of First Quarterly Report	September 30, 1976
Pretest Site Visits	September and October, 1976
Data Collection: Pretests-Student Outcomes	October, 1976
Commissioners' National Conference on Career Education	December 5 and 6, 1976
Submission of OMB Process Instruments Justification Package	December 17, 1976
Completion of Second Quarterly Report	December 31, 1976
Completion of Pretest Data Reduction	January 31, 1977
Site Visit by OCE Project Officer	February 10 and 11, 1977
Analysis Conference, Washington, D.C.	March 24 and 25, 1977
Third Quarterly Report	March 31, 1977
Completion of Data Collection: Program Descriptions	March and April, 1977
Implementation/Process, Posttest (Student Outcome) Site Visits	March and April, 1977
Data Collection: Implementation/Process, Posttest (Student Outcome)	April to June, 1977
Completion of Turnkey Månual (Vol. IV)	July 1, 1977
Completion of Initial Process and Posttest Data Reduction	September 16, 1977
Completion of Initial Final Report Analyses	November 8, 1977
Submission of Draft Final Reports	November 18, 1977
Review Conference, Washington, D.C.	February 1, 1978
Completion of Local Report Analyses	March 24, 1978
Completion of Implementation/Process Analyses	March 31, 1978
Completion of Outcome Analyses	March 31, 1978
Completion of Instrumentation Substudy Analyses	April 21, 1978
Submission of Instrumentation Substudy	June 12, 1978
Submission of Common Report	June 16, 1978
Submission of Executive Summary	June 16, 1978
Submission of Local Reports	June 19, 1978
Submission of Career Choice Substudy	June 19, 1978
Termination of Contract	June 20, 1978

and, where possible, compared to national data. Further, pretest results of the learner outcome tests are described. Chapter 5 explores the implementation/processes of career education, focusing on the frequency with which the actor groups participate in career education activities, the opinions about career education held by local practitioners, and the degree to which career education is implemented. Chapter 6 concentrates on the learner outcome posttest results. Three models are used to explicate changes in outcome scores from the pre- to the posttest. These models, discussed extensively in Chapter 2, are the comparison group model, the process model, and the joint effects model.

2

EVALUATION DESIGN SUMMARY

For the purposes of this study, evaluation was defined as "the process of clarifying a set of information needs, and collecting, analyzing, and reporting information to alleviate those needs" (Stenner, 1973). Through a series of design conferences involving local project staffs and Office of Career Education and NTS staffs, the evaluation team identified the types of information desired by various information users, particularly those of OCE. These information needs were expressed in the form of evaluation questions grouped around six major policy questions. The evaluation questions were subsequently "mapped" and the data elements required to answer each question along with the necessary analysis techniques were specified. Finally, a comprehensive evaluation design document was prepared that set forth a detailed methodology for the evaluation. This chapter presents a summary of the evaluation design including sections on the conceptual framework, methodological perspectives, primary evaluation questions, instrumentation, sampling, data analysis, and limitations on findings.

Conceptual Framework

In this section we present a conceptual framework for viewing the implementation/process of career education and its effects on students. The framework, illustrated in Figure 2.1, represents a synthesis of several theoretical models (Bloom, 1976; Fullan and Pomfret, 1977; Carroll, 1963; and Cooley and Lohnes, 1976). Implicit in the proposed conceptual framework is an attempt to represent the causal factors which determine how students perform on the learner outcome measures.

Student variation in learner outcome posttest scores is seen as emanating from two sources: variation in pretest scores and variation in exposure to career education concepts and activities. Pretest scores serve as a proxy measure for an individual learner's fund of past experiences. In a review of the importance of entry level performance (i.e. pretest scores) for later learning, Bloom (1976) estimates that one-half of the achievement variances (i.e. posttest performance) is attributable to prior experiences as manifested in pretest scores. Bloom (1976) states:

> In general, it will be noted that the estimated correlation between general measures of achievement at grade 2 and grade 12 is +.60, between achievement at grades 6 and 12, it is +.78, while between achievement at grades 10 and 12, it is +.90. Put in another way, after grade 3, the prediction of achievement at grade 12 is +.70 or higher.... The correlation between general achievement measures at adjacent years (or grades) is +.90 or higher.

A recent study by Bracht and Hopkins (1972) found a correlation of +.82 between composite achievement tests given at grade 3 and grade 11. Thus, about two-thirds of the variance in 11th grade

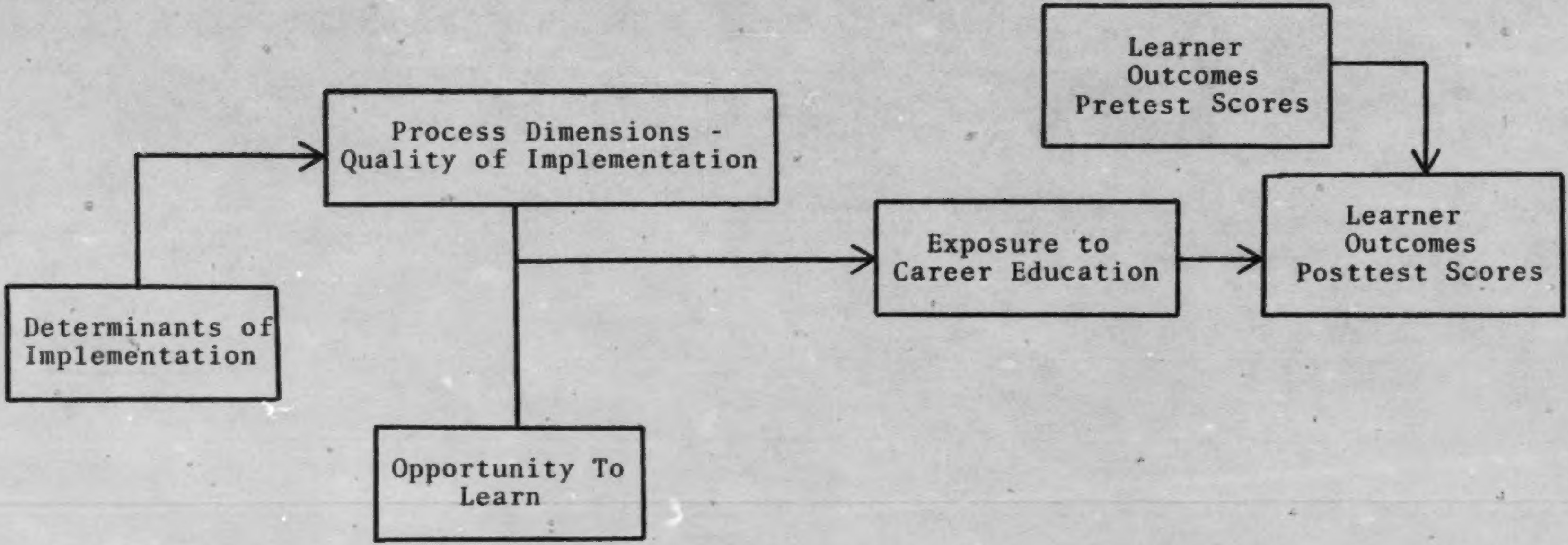
Learner Outcomes Pretest Scores
Process Dimensions - Quality of Implementation
Exposure to Career Education
Learner Outcomes Posttest Scores
Determinants of Implementation
Opportunity To Learn

Figure 2.1 Conceptual Framework for Evaluating Career Education

achievement was predictable from third grade achievement. Recognizing that the present evaluation study deals with an eight month treatment interval, it is apparent that pretest scores present a potentially powerful determiner of posttest scores.

The second source of variation in learner outcome posttest scores suggested by our conceptual framework is "exposure to career education" or, more specifically, the extent to which a student is exposed to career education concepts and activities. Variation in exposure to career education is itself a product of two influences: quality of implementation of career education and opportunity-to-learn. The level of exposure to career education exhibited by an individual student is partially determined by the level of teaching staff involvement in career education; teacher, counselor, and parental attitudes toward career education; types and frequency of career education activities engaged in by teachers, counselors, and principals; and other indicants of quality of implementation. The other source of variation in student exposure is opportunity to learn, which, at its most simplistic level, could be represented by daily attendance but might be better viewed as a complex of factors including motivation, and attendance. Opportunity to learn was included to ensure conceptual completeness; cost considerations, however, precluded operationalizing it in this study.

Finally, we attempt to explain observed variation in quality of implementation by employing a set of determinants of implementation including, for example, the school district's experience with innovation, adoption strategies (e.g., type and frequency of inservice), and organizational capacity to change. These determinants operate to facilitate or impede the implementation of career education and enable us to explain why some school districts or schools are better able to implement career education than others.

Thus, the conceptual framework posits a set of determinants which explains variation in the quality of implementation of career education. The quality of implementation interacts with opportunity to learn to determine the level of exposure to career education enjoyed by a particular student. Level of exposure to career education, combined with a student's readiness, i.e., pretest scores, explains observed variation in posttest score performance.

Table 2.1 describes how components in the conceptual framework were measured in this evaluation. For example, the component "determinants of implementation" was measured in essentially two ways: (1) local project directors and staff were periodically interviewed and observed by NTS staff, and (2) teachers, counselors, and principals completed questionnaires which included items on teaching context, organizational capacity, adoption strategy and staff characteristics. The first type of information on determinants of implementation is more qualitative and impressionistic than the second type and, although not integrated into the general data analysis plan, is presented separately in Chapter 5.

Cost considerations precluded extensive on-site observation of teacher/student interaction, and, consequently, this evaluation relies heavily on student, teacher, counselor, and principal

TABLE 2.1

Measurement Approaches Used for Each Component of The Conceptual Framework

Component of the Conceptual Framework	Measurement Approach
DETERMINANTS OF IMPLEMENTATION	• Periodic onsite observation and semistructured telephone interviews of project directors. • Questionnaires completed by students, teachers, counselors and principals - variable sets include: student or staff characteristics; teaching, counseling and school context; organizational capacity; and adoption strategy.
PROCESS DIMENSIONS	• Questionnaires completed by teachers, counselors and principals - variable sets include: Knowledge and Understanding, Role/Behavior, and Value Internalization
OPPORTUNITY TO LEARN	• This component was not operationalized in this evaluation.
EXPOSURE TO CAREER EDUCATION	• Questionnaire completed by students - variable sets include: Classroom activities, Linkage activities, and Extra-school activities.
LEARNER OUTCOMES	• Pre- Post measures of student learning and attitudes.

reports. In an effort to increase the level of interactor agreement regarding the implementation process, we endeavored to make items and activities highly specific. Fullan and Pomfret (1977) report that degree of specificity of questionnaire items explains some of the differences between reported and observed level of implementation and is, thus, an important ingredient in any study of implementation.

The conceptual framework suggested six policy level evaluation questions which formed the nucleus for this evaluative effort. These are:

(1) What factors determine the quality of implementation of career education?

(2) Do students who have been exposed to career education achieve more on the outcome constructs than do students who have not been exposed to career education?

(3) In what ways are the educational experiences of career education students different (both within and outside the classroom) from the educational experiences of noncareer education students?

(4) If career education students do, in fact, learn more in the defined outcome domains than noncareer education students, and if the educational experiences of career education students are different, then in what ways are these experiences related to gains on the outcome constructs?

(5) How do differences in student characteristics affect the educational experiences found in career education programs?

(6) Are there differential effects of career education which interact with student characteristics?

To fully answer any one policy question, we must first answer a family of primary evaluation questions. Just as policy making involves differentially weighing and synthesizing diverse alternatives into a single perspective, answering policy questions requires a synthesis of answers to primary evaluation questions. A later section in this chapter details the primary evaluation questions relevant to each policy question.

Methodological Perspectives

In this section we discuss seven methodological issues which played major roles in shaping the course of this evaluation. The issues are: (1) operationalizing learner outcomes, (2) implementation/process measurement, (3) inapplicability of a true experimental design, (4) grouping items and variables, (5) selecting a unit of analysis, (6) approaches to estimating treatment effect, and (7) educational and statistical significance.

Operationalizing Learner Outcomes

In planning for this evaluation, it quickly became apparent that available career education instrumentation was inadequate. A thorough review revealed a paucity of well constructed, structually defined, standardized, nationally normed instruments. At least five of the nine OE learner outcomes (see Table 1.2) encompassed constructs for which only limited instrumentation was available. The absence of well-defined outcome measures required NTS to perform a major construct definition study. Employing several hundred items purporting to measure one or more of the outcome domains, a large scale factor analysis and test validation substudy was completed. (The results of this substudy are described in Volume III). The construct definition study resulted in a set of outcome constructs, keyed to the OE learner outcomes, which possessed somewhat satisfactory psychometric properties.

What these construct measures lack is demonstrated predictive validity i.e., does a student's score on the outcome constructs hold any implications for extra-school ends such as job satisfaction, productivity, emotional well-being, and personal fulfillment? Presumably, students scoring high on work habits, career decision-making skills, and career awareness will lead more productive fulfilling lives than students who score low on these outcomes. For all but one of the outcome areas (i.e., basic skills) little empirical evidence exists that it matters what students score on the outcome constructs. We make this point not to negate the importance of the outcome constructs but to highlight the intuitive nature of the means-end relationships assumed in this evaluation. The "return to basics" movement is a call to focus on documented means-end relationships. Society is in general agreement on the meaning that basic literacy has for adult functioning in a modern society. Perhaps, because of the recency of the proposed career education outcomes, it is unlikely that a very large segment of the populace would agree on the relationship between several of these outcomes and subsequent career performance. It is ironic that the concept of career education embraces a commitment to relating school experiences to career development, and yet the primitive nature of available outcome measures forces reliance on intuition in relating proximate outcomes to later career performance.

The learner outcomes listed in Table 1.2 (p. 1.11) were adapted for the present evaluation effort.* Changes were made in the outcomes because of the lack of adequate instrumentation in some of the outcome areas and because some of the OCE learner outcomes are not readily operationalized. For example, the eighth outcome (placement) is not amenable to measurement through a pre-posttest instrument as it concerns behaviors after leaving school. The fourth outcome contains two distinct sets of skills--job getting/job seeking and decision making--skill sets which are not integrated logically. Further, decisionmaking appears to play a part in outcomes four, six (career-decisions), and seven (awareness of educational opportunities). The general nature of the OCE learner outcomes led NTS to develop the following adaptation of outcomes to be applicable to students leaving the formal educational system for the world of work:

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*Details concerning operationalization of these constructs are discussed in a later section. It is important to note that OE's outcomes were those operating at the outset of this study. The most recent set (presented in A Primer for Career Education, Hoyt, 1977, p. 35) does not suffer as extensively from problems of operationalization.

1. Basic Skills. Competent in the basic academic skills required for adaptability in our rapidly changing society.
2. Good Work Habits. Equipped with good work habits.
3. Work Values. Equipped with a personally meaningful set of work values that foster in them a desire to work.
4. Job Seeking/Job Getting Skills. Equipped with job hunting skills, and job getting skills.
5. Career Decisionmaking Skills. Equipped with the career decisionmaking skills required to choose from among career options.*
6. Continuing Education. Aware of means available to them for continuing and recurrent education.
7. Placement. Either placed or actively seeking placement in a paid occupation, in further education, or in a vocation consistent with their current career decisions.

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*It was the opinion of the NTS staff that the fourth learner outcome stated by Hoyt should be evaluated as two separate outcome goals; thus, we have placed decisionmaking as a separate outcome incorporating similar concepts from OCE's sixth and seventh outcomes as well.

8. Self-Concept. Equipped with perceptions of ones self, including perceptions of one's abilities and relationships with significant others.*

9. Career Awareness. Equipped with a degree of self-understanding and understanding of education-vocational opportunities sufficient for making sound career decisions.

This adapted list of outcomes was used in this study primarily for instrument selection. The instruments selected, and described later in this chapter, were subjected to a major construct definition effort, which led to a set of learner outcome constructs based on factor analytic procedures. The construct definition procedures and results are discussed briefly later in this chapter; a detailed presentation can be found in Volume III.

Implementation/Process Measurement

A major focus of this evaluation is the implementation/process of career education. Conceptualization and measurement of a process as complex as career education purports to be is a difficult task. The difficulty was compounded by resource limitations which precluded any extensive on-site observations of classrooms and students. As a consequence, our approach to assessing the quality of implementation relied exclusively on teacher, counselor, and principal reports regarding their respective levels of career education knowledge and understanding, involvement in career education activities, and attitudes concerning career education's role and presumed benefits. Similarly, students reported on their frequency of "exposure" to a variety of career education related activities suggested by local project staffs, OCE, reviews of the literature, and past evaluations of career education projects conducted by NTS.

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*All of the sources which specify learner outcomes for career education mention the importance of self-awareness and self-understanding. We chose the broader notion of self-concept to conceptualize this outcome domain as there were no suitable instruments for self-awareness and self-understanding. A suitable instrument was available for self-concept.

We recognize that it would have been methodologically more sound to bolster our questionnaires with classroom observation, rather than rely on practitioners' reports; however, the large number of teachers, counselors, and principals rendered this option infeasible. Another alternative to cross validation was to link each student's responses directly with his or her teacher's responses, so that reported implementation, averaged across all of a student's teachers, could be directly compared with student reported exposure. At the fifth grade level this approach to cross-checking divergent perspectives on the implementation process proved feasible, but we felt that matching eighth and eleventh grade students with their respective set of teachers across two semesters would overburden both participating schools and NTS data processing staff. We finally compromised as follows: by employing the school building as the unit of aggregation for selected analyses it is possible to compare aggregated teachers, counselors, and principal reports on levels of implementation. Similarly, student reported exposure can be aggregated to the classroom level (for fifth graders) and to the building level (for all grades) for correlation with teacher reported implementation. These approaches present some unit of analysis problems (see later discussion on this topic), but represent cost-effective options for measuring the implementation/process of career education while, at the same time, permitting some cross-checking of perspectives.

For better or worse we have viewed the implementation/process of career education as a "snapshot," assuming that this picture of what students, teachers, counselors, and principals report would be representative of what career education was throughout the treatment interval. By requesting actors to report on frequency of involvement in various activities, we hoped to generate a retrospective report which would approximate the level of implementation or exposure throughout the treatment interval. We are under no illusions that this approach is error free. Retrospective reports are altered, for example, by selective memory and misinterpretations of time periods and recency of events; however, we believe that this approach, with all its failings, is superior to a more constricted time frame (e.g., one day or one week), particularly when the innovation is an evolving process undergoing constant change.

Again reflecting on the ideal, it would have been better to conduct a process assessment in the fall and again in the spring. This strategy would have permitted fewer ambiguous inferences regarding how career education is transformed and how quickly it is assimilated into the ongoing educational program. While recognizing the advantages of a strategy that can detect change in process over time, such an option was not possible in this evaluation, given Office of Management and Budget (OMB) clearance requirements and the original fifteen month contract period.

Inapplicability of a True Experimental Design

Another methodological issue revolved around the inapplicability of a true experimental design, since students were not randomly assigned to treatment and control conditions. The approach finally selected has been termed "the method of controlled correlation" (Cooley and Lohnes, 1976) to highlight the role of the correlation coefficient as the primary index of strength of relation and explanation. Cooley and Lohnes (1976) state:

> This method avoids the expression of effects of innovation in terms of differences between or among group means. It also avoids emphasis on inference statistics such as τ, F, $\chi 2$ as evidence of the reliability or generalizability of effects. It favors the expression of effects in terms of the proportion of criterion variance accounted for by each domain of predictors or each specific predictor, and the demonstration of reliability and generalizability by the employment of large convincing samples and by replication (p. 202).

A good evaluation supplies at a minimum, two kinds of information. The first kind of information shows whether the treatment, in this case career education, improves student performance above and beyond what would have been expected had there been no treatment. The second kind shows what aspects or strategy mixes account for the program effect. The method of controlled correlation is capable of providing both kinds of information in a highly parsimonious manner. Cooley and Lohnes (1976) set forth ten reasons for recommending this approach:

1. Educational criteria do not possess natural metrics, so comparisons of means are confused by the meaninglessness of the units of measurement.

2. There are many relevant educational criteria for the evaluation of any educational system, so there is too much detail in a table of means.

3. Where the variance in criteria comes from is the main puzzlement in evaluations, and squared correlation coefficients address the issue directly.

4. The correlation coefficient is a ubiquitous tool which can be made to express the degree of relatedness of any pair of variates, whatever the type of measurement scale (nominal, ordinal, continuous, ratio) for each variate, so that a single type of statistic can unify all data reductions.

5. Linear functions of sets of variates are the obvious operationalization of theoretical constructs in educational research, and the correlations of such functions with the variates on which they are defined are the obvious expositors of the structure of assessments.

6. Multiple, canonical, part, and partial correlation coefficients express the relationships among constructs operationalized as linear functions of observed variates, and each of these can be understood as a special type of bivarate product-moment correlation coefficient.

7. Sequential multivariate regression modeling makes it possible to interpret squared correlation coefficients or their first differences as independent, additive components of explained criterion variance.

8. Since most null hypotheses of interest in evaluative research are a priori false, inference statistics usually test the adequacy of sample size for protecting against Type II error, which is not one of the really important issues.

9. In many evaluations, the available panel of data will be the best source of information that can be mustered about certain questions, and provisional policy decisions will have to be based on whatever robust trends exist in the panel. Generalizability of these trends will be most meaningfully demonstrated to the local decision makers by evidence of their persistence in subsequent panels of data collected locally, as time permits such follow-up.

10. Evidence that what works in one context will work in another is best sought by trials in new contexts, not by arguments from statistical inference (p. 202-203).

Numerous sets of variables are manipulated through the method of controlled correlation to answer the evaluation questions presented later in this chapter. Of particular interest is the proportion of criterion variation that can be uniquely assigned to treatment group and various sets of implementation/process variables and the proportion of variance that is confounded among various combinations of these predictor variable sets. Most proponents of the "controlled correlation" approach to evaluation (cf. Cooley and Lohnes, 1976; Mayeske, et al., 1973) express effects as the portion or percentage of total outcome variance explained by background characteristics, pretest scores, treatment group membership, process variables, etc. In the present evaluation study we make what we believe is an important distinction between total outcome variance (i.e., posttest variance) and residual outcome variance. The residual outcome variance represents what is left over after pretest variance has been removed. Intuitively, it is the variance in the outcome that cannot be explained by prior experiences or the variance that has "appeared" during the interval between pretest and posttest (ignoring for the moment the issue of error). This residual outcome variance is the criterion in our evaluation study, i.e., it is what an evaluation should try to explain.

This shift in emphasis accomplishes several objectives. First, it focuses attention on only that portion of the outcome variance that is potentially explainable by treatment variables. It establishes the residual outcome variance (i.e., criterion variance) as the denominator in all effect ratios, and it makes explicit a little appreciated distinction between evaluation and research. A research study is presumably interested in explaining the total outcome variance, whereas, evaluation has a much narrower focus, i.e., explaining only that outcome variance generated during the period of treatment. If, as a hypothetical example, pretest, which carries with it a wide spectrum of past experiences, explains 60 percent of the outcome variance and treatment group membership explains an additional 10 percent, then the most appropriate expression of treatment effect is $\frac{.10}{1-.60}$ or 25 percent. The denominator becomes the criterion variance rather than the total outcome variance. Even this expression is conservative, given that treatment effect must compete with error in explaining the criterion variance.

Throughout the report we will make the above distinction between outcome variance and criterion variance. Many tables will report both the portion of total variance and the portion of criterion variance explained by sets of independent variables. The reader is encouraged to be sensitive to the differences between the terms "criterion" and "outcome" as used in this report.

Grouping Items and Variables

This study requires the manipulation of large numbers of variables. In order to do this efficiently, the variables need to be grouped. In this study the grouping takes place at two levels: (1) components of the conceptual framework and (2) within each component. As it is a straightforward procedure, given a conceptual framework, to classify variables into the various components, this discussion will focus on grouping variables within components.

The reasoning behind grouping items and variables within a component prior to examining intra and inter domain relationships, is a bit more subtle than assignment to components. The intercorrelations among knowledge and attitude items lead to inferences about the existence of organizing influences, which are believed to determine interitem correlations. Upon examination of these correlations, we typically make a decision to group highly correlated items, thus forming a scale. Weighted or unweighted combinations of item scores produce scale scores. It might seem logical that this same approach should be followed in grouping determinants and implementation/process variables. We offer the following argument for why such an approach, while appropriate for grouping most outcome variables, is clearly inappropriate for grouping most independent or control variables.

The fact that certain teacher characteristics are correlated with certain student characteristics, i.e., certain types of students are consistently taught by certain types of teachers, is generally a result of policy decisions. The relationship could be easily manipulated by simply changing the policy governing assignment of teachers to schools. The interrelationships among attitude or knowledge items, on the other hand, are not so easily manipulated. It is much more difficult to dictate changes in the structure of individuals' mental processes than it is to alter organizational patterns or coincidence of staff behaviors. Thus, we conclude that the empirically observed correlations among knowledge and attitude items should determine how such items are grouped; however, implementation/process variables should be logically grouped so that "resource packages" can be most easily configured and delivered. For example, the finding that the frequency with which counselors engage in career education activities is positively correlated with the frequency with which teachers engage in such activities should not lead us to group these two types of activities together into a "staff activities" cluster. A resource package geared to increasing teacher involvement in career education activities would likely be quite different from one designed for counselors; thus, it is logical to distinguish between such groups of process variables when examining process-outcome relationships. Another example involves the division of student activities into three categories: classroom activities, linkage activities, and extra school activities.* If one set of activities is highly related to an outcome, then the implication is that an appropriate change in the frequency of these activities will favorably affect the outcome scores. It follows that if the implementation/process variables are logically grouped prior to correlating them with outcomes, their implications for program development and policy will be more immediately discernible.

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*See page 5.6 for a further discussion of these activity variable sets. Briefly, "classroom activities" are those comprising part of classroom-based instruction; "linkage activities" take place outside the student's classroom, but are part of formal education; and "extra school activities" are those which take place outside the school and are not part of the formal curriculum.

Table 2.2 lists the variable groupings (termed "sets") for each participant group. Note the parallel structure for teachers, counselors, and principals. For each practitioner group there are sets of determinants and process dimensions. Similarly, for students there are sets of determinants and exposure variables. The student group also includes a set of outcome variables. The outcomes listed are the constructs developed in this study.

Selecting a Unit of Analysis

Selecting an appropriate unit of analysis is one of the most important considerations in planning and executing an evaluation. Galtung (1967) states:

> The choice of unit is probably the first decisive choice made in most investigations. Once made, it is hard to reverse; the procedure will be built up around this choice. For that reason it is essential to have a clear picture of the spectrum of possible units, so that the choice based on the research problem may be a fruitful one, and not only the traditional one (p.39).

The major purpose of this evaluation, as reflected in the policy evaluation questions, is to assess the effects of career education on students. Thus, for most analyses the student will be the unit of analysis. D. R. Cox (1958) notes that the unit of analysis should be "The smallest division of the experimental material such that any two units may receive different treatments in the actual experiment" (p.2). In other words, the unit of analysis should be the lowest level of aggregation at which units (i.e., students) are exposed to differential treatment.

Wiley (1970) has argued that the classroom is often the appropriate unit of analysis. He states:

TABLE 2.2
VARIABLE GROUPINGS BY RESPONDENT GROUP

RESPONDENT GROUPS	DETERMINANTS OF IMPLEMENTATION		IMPLEMENTATION/ PROCESS	OUTCOMES
STUDENTS	*Student Characteristics* Sex Age Ethnicity Number of Siblings Father's Education Mother's Education Grades in School Time on Homework SES Amount of TV		*Exposure to Career Education* Classroom Activities Linkage Activities Extra School Activities	*Student Learner Outcomes* Plans and Expectations Reading Achievement Math Achievement Social/Personal Perceptions Academic Perceptions Occupational Self-Awareness Work Values Interest in Career Preparation Attitude Toward Work Knowledge of Work Values Decision Making Job Seeking/Job Getting Career Awareness Economic Awareness Affective Discriminant Cognitive Discriminant
TEACHERS	*Staff Characteristics* Age Sex Ethnicity Degree Working Employment Status =Occupations Studied =Occupations Employed Outside Work =Years Experience Education Position Held *Teaching Context* #Students Planning Time Subject Area(s) Grade(s) Taught	*Organizational Capacity* Staff Morale School Effectiveness Rating *Adoption Strategy* Type of Staff Development Amount of Staff Develop.	*Knowledge & Understanding Role/Behavior* Classroom Activities Linkage Activities Extra School Activities *Value Internalization* Perceived Benefits Perceived Burden Role of School	
COUNSELORS	*Staff Characteristics* Age Sex Ethnicity Degree Held =Occupations Studied =Occupations Employed Outside Work =Years Experience Education Positions Held *Counseling Context* =Students Counseling Activities Counseling Areas Follow-up Methods	*Organizational Capacity* Staff Morale School Effectiveness Rating *Adoption Strategy* Type of Staff Development Amount of Staff Develop.	*Knowledge & Understanding Role/Behavior* Student Counseling Activities Linkage Activities Extra School Activities *Value Internalization* Perceived Benefits Perceived Burden Role of School	
PRINICPALS	*Staff Characteristics* Age Sex Ethnicity =Occupations Studied =Occupations Employed Outside Work =Years Experience *School Context* Locale =Students =Teachers =Support Staff =Daily Sessions Hours/Daily Sessions Student Body SES Community Involvement Average Daily Attendance Student Mobility Drop-out Rate	*Organizational Capacity* Staff Morale School Effectiveness Rating *Adoption Strategy* % Staff in CE Staff Develop. Source of CE Staff Develop. Freq. of CE Staff Develop Initiation of CE Adoption Type of Staff Development Amount of Staff Develop.	*Knowledge & Understanding Role/Behavior* Linkage Activities Extra School Activities *Value Internalization* Perceived Benefits Perceived Burden Role of School	
PROJECT STAFF	*LEA Characteristics* *Program Characteristics* *Staff Characteristics*	*Political Complexity & External Agency Support* *Organizational Capacity & History of Innovation* *Congruence with Zeitgeist* *Opportunistic vs. Problem Solving Adoption Philosophy* *Attitudes Toward Source of Innovation* *Adoption Strategies* *Incentives & Disincentives for Adoption & Implementation* *Explicitness* *Complexity* *Time for Planning & Orientation* *Level of Resource Commitment* *Saturation of Adopting Agency*	*Tangible Resources* *Intangible Resources* *Knowledge and Understanding Role/Behavior* *Value Internalization*	

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> To make this more concrete, if the object of evaluation is a typical classroom instructional program, when the instruction is received simultaneously by all students in the class, then the appropriate vehicle (or sample unit) is the class and not the individual pupil. This is equivalent to the standard definition of the experimental unit in this case: if two pupils in the same class may not receive different instructional treatments, the classroom is the appropriate unit (p.264).

This argument in favor of the classroom as the unit of analysis was also advanced by Marshall Smith in the second year evaluation report on Head Start Planned Variation (1973); he states:

> By and large, a child's experience in Head Start is confined to one classroom, one teacher and one teacher's aide. There is a great deal of variation within sites in the characteristics of the teachers and aides, and so it might be argued that children in different classrooms within sites undergo different experiences. This argument is strengthened when we recall the tremendous variation within sites in the sponsor's estimates of the level of implementation. Although it might also be rightly argued that different children within the same classroom undergo different experiences and therefore should be treated separately in an analysis, we have no information on what causes these differences (as we might have if we had carried out classroom observations on individual children). Thus there seems little purpose in not aggregating the children to the classroom level where we might be able to distinguish among group experiences (pp. 101-109).

Two reasons led Smith to favor the classroom as the unit of analysis. First, he argued that the outcome variables were more reliable at the classroom level than at the individual level. Secondly, Smith planned to use many classroom level variables (e.g., teacher characteristics) and felt that employing the child as the unit of analysis would seriously overestimate the degrees of freedom for the classroom level variables.

However, further analysis reveals that neither reason supports the use of the classroom as the unit. First, aggregation does not necessarily increase the reliability of a criterion measure. Contrary to popular belief, the use of Wiley's formula for reliability, which is more appropriate than Shaycroft's when the classroom rather than the individual is employed as the unit of analysis, can result in a decrease in reliability at higher aggregation levels. Secondly, the degrees of freedom argument, although used by Smith to argue for a higher level of analysis, led Emrick to argue for a lower level:

> Aggregating pupil level data to the class level... appears to shift evaluation focus from the individual child and to reduce statistical power and precision by decreasing observations (There are certainly more children than classrooms) (1973, A-5).

For the purposes of this present study, we wish to argue that the career education process exerts a differential effect at the individual student level, i.e., since there is no classroom instructional package being delivered, the presumed effect on students within a classroom is not the same. Most career education projects embrace the notion of infusion and claim that the career education process is implemented throughout target schools. However, the level of implementation by teachers and staff varies widely. Thus, student exposure to career education can be expected to vary from student to student. In short, we argue that students can receive varied levels of exposure to career education, and, consequently the individual student is the appropriate unit of analysis.

For aggregation of results, however, the individual student need not be the only level at which the results are examined.

Even though students can vary in their level of exposure within a classroom, the students in a given classroom could receive more, or less, exposure to all or a subset of the career education activities than students in other classes. Teachers, as the source of much of the career education treatment, are not, therefore, removed from the system. It is possible to aggregate fifth grade students within their classrooms; fifth, eighth, and eleventh grade students' results can be examined at the school building level. School aggregation followed by between-school analyses can serve two purposes: (1) a substantial amount of within group variance may be accounted for by the source of career education exposure; and (2) by correlating students' reports with their teachers, the validity of the reports can be checked.

Some authors have argued incorrectly that wherever the classroom is employed as the sampling unit then classrooms should be used as the analysis unit. In the present study "homerooms" were used as the sampling unit and, according to the above argument, should be used as the analysis unit. This argument only holds if the collective, in this case the classroom, is viewed as a carrier of the treatment. In no way do we view the "homeroom" as a vehicle for delivering the career education process. The "homeroom" is simply a "unit of convenience" which minimizes the testing burden and ensures individual school cooperation. Had it been simpler, we would have sampled individual students because of our theoretical commitment to differential exposure to *treatment. The erroneous conclusion that the sampling unit* must be used as the analysis unit assumes that the collective is a carrier of the treatment and ignores the very useful concept of "unit of convenience."

When we speak of treatment effects on individuals, we are speaking about something very different from treatment effects on collectives, e.g. classrooms, schools, or districts. For example, when we aggregate self security scores from the individual to the school level, we have, in all likelihood, altered the intrinsic definition of the construct (Katzenmeyer and Stenner, 1975). The individual and school level construct are not necessarily "inferentially equivalent", i.e., we are not permitted similar inferences from similar observed correlations or treatment effect estimates. The burden of proof regarding inferential equivalence rests on the investigator. The assumption that the construct's definition remains unchanged upon aggregation must be tested before context effects are claimed.

Approaches to Estimating Treatment Effect

Three complimentary approaches were used to determine the impact of career education processes on a range of outcome constructs. A brief discussion of these approaches is followed by detailed presentations of each. The first approach employs a comparison group to estimate what students would have achieved had there been no career education program. The treatment effect is equal to the difference between target and nontarget posttest means adjusted for differences on the pretest. Another way of expressing the treatment effect is as the square of the partial correlation between group membership (target vs. nontarget)* and posttest scores. In the former case the treatment effect is expressed as a difference in group means, whereas in the latter the effect is represented as the proportion of outcome variance that can be explained by treatment condition over and above that explained by pretest variation. The F statistic obtained in the two cases is identical, confirming that the two approaches are statistically as well as conceptually equivalent.

The second model tests the assumption that there is a relationship between exposure to career education and subsequent performance on the outcome constructs. If the career education program is having an effect, then we would expect that students with high exposure to career education activities would obtain higher posttest scores (adjusted for pretest differences) than students with low exposure to career education. As in the comparison group model, there are at least two alternatives for expressing the treatment effect: (1) students could be divided into high and low exposure groups, and their respective adjusted group means on the outcome constructs could be examined for differences; or (2) the exposure scores could be correlated with posttest scores adjusted for pretest contribution. To the extent that exposure scores are able to explain outcome variation beyond that explained by pretest we infer a treatment effect.

The third model consolidates the above two models into one analysis (see Figure 2.2). In this model both group membership and exposure are correlated with outcome scores. To the extent

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*The definition and selection of target and nontarget respondents are discussed on pages 2.64 and 2.65.

that the unique contribution of group membership (segment C) to explaining criterion variation (after removing pretest) is large, we infer that there was some treatment effect registered on the criterion, but our exposure variables failed to specify the relevant aspects of the process. If on the other hand the unique contribution of exposure variables (segment A) to explaining criterion variation is large, we infer that (1) the program did little to affect relevant process dimensions, and (2) we can specify some of the important process dimensions which might be addressed by future career education programs interested in maximizing the particular outcome under consideration. Lastly, suppose that the unique contributions of both group membership and exposure variables are small relative to their confounded or joint contribution (segment B). In this case not only has the program succeeded in generating a treatment effect, but the evaluation team has succeeded in specifying the particular process dimensions potentially responsible for that effect. In the next few pages, each of the those models will be discussed in more detail.

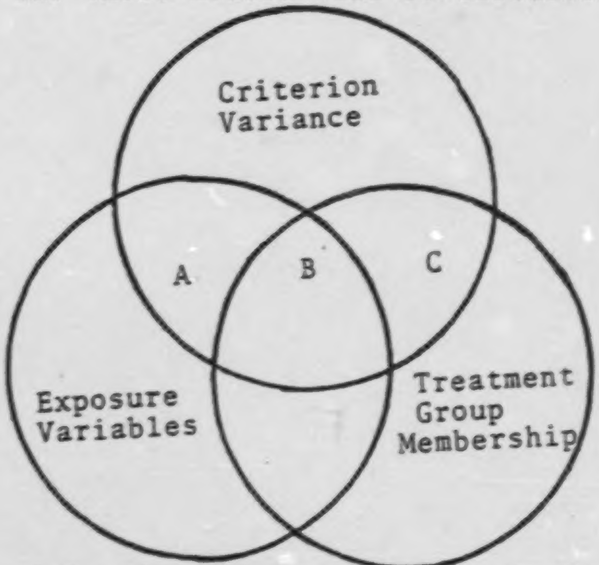

Figure 2.2 Balantine Expressing The Relationships For The Joint Effects Model.

The Comparison Group Model. A distinction must be made between a control group and comparison group model. Typically, treatment and control groups are formed through some kind of probabilistic sampling, and group membership is uncorrelated with treatment. In the present evaluation, it was neither possible to randomly assign students to treatment and control conditions, nor was it possible to locate intact groups that had no exposure to career education concepts and practices. However, six project sites identified groups of students who were said to be similiar to treatment students in background characteristics, but who were not targeted to receive career education. These students were designated as nontarget students with the full recognition that they were not a pure control group. In fact, as will be discussed in Chapter 4, there were substantial background characteristics differences. Further, Chapters 5 and 6 suggest that the "contamination" level of the nontarget group is high.

The comparison group model estimates treatment effect by comparing target and nontarget students. The treatment effect is expressed as a squared partial correlation coefficient, which is conceptually and statistically equivalent to reporting the adjusted standard score difference between target and nontarget group means. The conceptual and statistical equivalence of the correlational and group means approaches, coupled with the greater versatility of the correlational approach, provides the rationale for expressing treatment effects and other relationships as squared correlation coefficients. Because many texts treat the correlational approach and the group means/ANOVA approach as conceptually and statistically distinct systems, it is desirable to briefly explore the underlying equivalence of these approaches.

The squared partial correlation between group membership (target vs nontarget) and outcome is that portion of outcome variation that can be explained by group membership over and above that explained by pretest. The point biserial correlation is appropriate in this case since we wish to correlate a dichotomy (membership in either target or nontarget group) with a continuous score. The point biserial correlation is nothing more than a special case of the familiar Pearson product-moment correlation (r), and its significance can be tested using significance tables for the regular Pearson correlation. The point biserial correlation between group membership and an outcome variable displays an interesting and conceptually unifying property. Under the circumstances in which the two groups on the dichotomous variable are of equal size ($p=q=.5$), r then equals half the difference between the Z score means on the criterion; so 2r equals the Z score difference between the means on the criterion variable. Thus, if the correlation between group membership and an outcome was .50, we would know that a one standard deviation difference existed between the means for target and nontarget groups. The F statistic for the correlation coefficient is identical to the F statistic for the difference between the means.

The computation procedures for the comparison group model are straightforward. First, the outcome scores are regressed on the pretest scores. Then, the group membership variable is added to the regression equation. Last, the interaction of group membership with pretest is added. If the increment of the latter to the R^2 is significant, then a major assumption of analysis of covariance is violated. That assumption states that the relationship between the outcome and pretest is the same across the populations from which the groups were drawn. There is no provision in the analysis of covariance model for the possibility that pretest and outcome correlations are different in the target and nontarget groups. Assuming that the interaction of pretest and group membership makes a trivial contribution to the R^2, then we examine the partial correlation of group membership and outcome. If group membership makes a significant addition to explaining outcome variance beyond that explained by pretest, we infer a treatment effect and express the effect as a squared partial correlation. As we have seen previously, this squared partial correlation yields an F statistic equivalent to that obtained for the adjusted pretest mean differences between target and nontarget students.

Process Model. The process model presumes that "treatment" is a continuum and that students vary in exposure to career education concepts and activities. This formulation departs radically from the Fisherian school of research design in which all treatment units (in this case students) are assumed to receive the same treatment. Educational innovations are neither specified precisely enough nor so systematically delivered that all students are exposed to identical treatments. The process or exposure model not only admits to variability in the ways educational innovations are delivered, but attempts to capitalize on this variability in estimating treatment effect. The model asserts a relationship between degree of exposure to career education and subsequent outcome scores.

Consistent with the controlled correlation method for expressing effects (see pages 2.14-2.17), the process model relies on the squared partial correlation. First, the outcome scores are regressed on the pretest scores, then the set of process scores (representing exposure to various activities) are added to the regression equation. Lastly, the interaction between pretest and process variables are added to the equation. As before, the first step is to test the assumption of homogeneity of regression lines. Assuming that the interaction of pretest and process is insignificant, then we are free to examine the partial correlation between process and outcome. This partial correlation is equivalent to the simple correlation between residual process and residual outcome scores, where the residuals in both cases have been created by removing pretest.

Joint Effects Model. The joint effects model combines the comparison and process models into one analysis. Both group membership and the set of process variables are entered as independent variables. The unique contribution made by the set of process variables serves to identify the portion of criterion variance explained by process variables, which are not differentially represented in the target and nontarget groups. In other words, this portion of criterion variance is due to process variables on which the program exerted no effect. The unique contribution made by group membership represents the unspecified program effect or that portion of the treatment that the evaluation team failed to identify when specifying process variables. The joint contribution of process and group membership to explaining criterion variance is due to the confounding of process and group membership. This joint contribution is due to the assortative mating of process variables and the target-nontarget designation. To the extent that the joint contribution is large, relative to the combined unique contributions of process and group membership, we may infer that the important process dimensions were delivered differentially to target and nontarget groups (i.e., the program had an effect on the instructional process) and that the evaluation team was successful in identifying and measuring the important process dimensions. If the unique process contribution is large, relative to the unique group membership and joint contributions, then the evaluation team was successful in identifying and measuring the important process dimensions, but the program exerted little effect on these processes. On the other hand, if the unique contribution of group membership is large, relative to the unique process and joint contribution, then the program had an effect, but the evaluation team was unsuccessful in specifying the process dimensions responsible for the effect.

The joint effects model is a powerful tool for explicating the nature of treatment effects and assessing the adequacy with which the evaluation team specified key implementation/process variables. One ratio is of particular interest and is termed the "process specification index"(PSI). The PSI is the percent of treatment effect that is explainable by process dimensions. It is found by dividing area B in Figure 2.2 by the sum of areas B and C. As area B increases, the quality of process specification increases. If area C is small, it means that very little of the treatment effect remains unexplained by the process dimensions.

Educational and Statistical Significance

It is well known that any nonzero difference between means (or, correspondingly, any nonzero correlation coefficient) can be made statistically significant if large enough samples are employed. Rather large samples are used in the present evaluation, thus, the question naturally arises as to whether that which is statistically significant is also educationally significant or practically meaningful. Testing a correlation or difference between group means for significance is a common approach to protecting against a Type I error--concluding that there is an effect when in fact there is none. Of equal concern in an evaluation study is protecting against Type II error--concluding there is no effect when in fact there is. Power analysis (Cohen, 1969) seeks to control the error rate of failing to detect a treatment effect.

For most comparisons in this evaluation the sample sizes are sufficient to insure adequate power; however, because of the large sample sizes, statistical significance does not necessarily imply educational significance. In preparing evaluation models for ESEA Title I, RMC Corporation suggested that a treatment effect of one-third of a standard deviation be considered educationally meaningful--other authors have argued for .25 standard deviations and still others for .50 standard deviations. In an evaluation of Follow Through (1973), Abt Associates argued as follows:

> For all levels of analysis, all results that are larger than a quarter of a standard deviation are presented for discussion. This criterion is admittedly statistically arbitrary; however, a quarter of a standard deviation is perhaps an appropriate index of educational impact and does provide a heuristic for decision making (VII--56).

It is illuminating to consider the equivalent squared correlations for these different recommendations. Assuming equal sample sizes in target and nontarget groups, a posttest difference of .25 standard deviations between target and nontarget groups is equal to a squared correlation of .016 between group membership and the criterion. This amounts to a little more than one and one-half percent of the outcome variance being explained by treatment group membership. A difference of one-third of a standard deviation is equal to a squared correlation of .029 or less than three percent of the variance. A one-half standard deviation difference between adjusted posttest scores is equal to an R^2 of .063 or a little more than six percent of the variance. The reader might pause and ask himself whether if, in the past, he would have given the same interpretation and assigned the same importance to a mean difference of one-third standard deviation and a reported $R^2 = .03$. It is common practice to belittle R^2s of .02--.05 as inconsequential and of limited importance. Only after seeing the relationship between mean differences and portions of variance explained does it become apparent that unique effects of one percent or more should be accorded importance in an evaluation.

Primary Evaluation Questions

This section presents the primary evaluation questions encompassed by the six policy questions. Policy questions one, three, and five and associated primary evaluation questions are addressed in chapter 5; policy questions two, four, and six are considered in chapter 6.

1. WHAT FACTORS DETERMINE THE QUALITY OF IMPLEMENTATION OF CAREER EDUCATION?

    - What are the major determinants of implementation and how do they relate to one another?
    - What is the relative importance of staff characteristics, teaching, counseling or school context, organizational capacity and adoption strategy in determining quality of implementation?
    - Which process dimensions (knowledge and understanding, role/behavior, and value internalization) are relatively more difficult to implement?
    - What are the grade level and project differences in reported implementation of career education?

2. DO STUDENTS WHO HAVE BEEN EXPOSED TO CAREER EDUCATION ACHIEVE MORE ON THE OUTCOME CONSTRUCTS THAN DO STUDENTS WHO HAVE NOT BEEN EXPOSED TO CAREER EDUCATION?

    - To what extent do career education students gain more on the learner outcomes than noncareer education students?
    - On which learner outcomes do career education students consistently outperform noncareer education students?
    - What are the grade level differences in observed treatment effects?
    - What are the project differences in observed treatment effects?

3. IN WHAT WAYS ARE THE EDUCATIONAL EXPERIENCES OF CAREER EDUCATION STUDENTS DIFFERENT (BOTH WITHIN AND OUTSIDE THE CLASSROOM) FROM THE EDUCATIONAL EXPERIENCES OF NONCAREER EDUCATION STUDENTS?

   - To what extent do career education students get more exposure to career education activities (classroom, linkage and extra school) than noncareer education students?

   - What are the grade level differences in exposure to career education activities?

   - What are the project differences in exposure to career education activities?

   - How are student characteristics related to exposure to career education activities?

4. IF CAREER EDUCATION STUDENTS DO IN FACT LEARN MORE IN THE DEFINED OUTCOME DOMAINS THAN NONCAREER EDUCATION STUDENTS, AND IF THE EDUCATIONAL EXPERIENCES OF CAREER EDUCATION STUDENTS ARE DIFFERENT, THEN IN WHAT WAYS ARE THESE EXPERIENCES RELATED TO GAINS ON THE OUTCOME CONSTRUCTS?

   - How are student activities (classroom, linkage and extra school) related to student performance on the learner outcomes?

   - What percent of the treatment effect can be explained by level of student exposure to career education concepts and activities?

5. HOW DO DIFFERENCES IN STUDENT CHARACTERISTICS AFFECT THE EDUCATIONAL EXPERIENCES FOUND IN CAREER EDUCATION PROGRAMS?

   - Do students with particular student characteristics receive different types of exposure (i.e., activities) than do other students?

6. ARE THERE DIFFERENTIAL EFFECTS OF CAREER EDUCATION WHICH INTERACT WITH STUDENT CHARACTERISTICS?

   - Do students with particular backgrounds benefit more from certain types of exposure (i.e., activities) than other students?

   - Do students from certain projects benefit more from certain types of exposure than students from other projects?

Instrumentation

The complex nature of this evaluation reflected the program's complexities and was reflected in turn by the wide variety of instruments utilized. Information needs existed in three areas: determinants of implementation, implementation/process, and outcome. Sources for this information included five groups: students, teachers, counselors, building level administrators, and local project staff. In this section we discuss the instruments administered to each respondent group. Construct definition procedures and the psychometric properties of each construct measure are presented in the following section. The instruments can be found in Appendix B, and more detailed discussions of both topics are included in Volume III, The Career Education Instrumentation Substudy.

Local Project Staff

Three instruments were developed by NTS to collect information about LEA characteristics, program characteristics, and the extent to which career education was implemented in the projects. A fourth instrument was developed and used in-house by NTS staff to record appropriate census data for each project community. Table 2.3 presents summary information describing each of these instruments. Instrument development was guided by a concern to avoid placing an excessive burden on local project staff, while still meeting the requirements of the contract to gather information on levels and sources of past funding; the numbers of staff who received career education training; existing evaluation results; demographic, geographic, and economic characteristics;

Table 2.3

Instruments For Collecting Determinants Information

Instrument	Respondent Group	# of Items	Item Type	Typical Item(s)
LEA Characteristics Form	Local Project Staff	45	Open Ended	What has been the average number of new faculty each year over the past five years?
Project Characteristics Form	Local Project Staff	35	Open Ended	Note any significant changes in, or additions to, program objectives over the past several years.
Implementation/ Process Observation Form	Local Project Staff	35	Open Ended	Previous examples of incorporation of large scale innovation within last five years? Time for planning and orientation? What changes in role/ behavior does the project director hope to see?
Community Census Data Checklist	NTS Project Staff	56	Open Ended	Mobility: % population born in state? % 1970 population living in same county in 1965? % workers working in county of residence?

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degree of implementation, and procedures for internal administration and operation of the project. These data are summarized in the following chapter; detailed reports on each project are included in each individual project's final report.

Teachers, Counselors, and Principals

Although NTS developed a unique survey form for each of these respondent groups, similarities in content and structure permit discussing them together. These forms were used to collect information on the determinants of implementation and implementation/process data from each respondent group. Determinants of implementation included: staff characteristics (demographics, educational experiences, and noneducational career experiences); teaching context, counseling context, or school context; organizational capacity; and adoption strategies.

Process dimensions were measured by three sets of variables: (1) knowledge and understanding of career education; (2) role/behavior related to career education--including classroom activities, linkage activities, and extra school activities; and (3) value internalization, as determined by factor analyzed responses to forty Likert-type career education opinion items.

More complete descriptive information for the Teacher, Counselor, and Principal Survey Forms is presented in Table 2.4. The instruments can be found in Appendix B; complete discussions of the procedures by which the value internalization constructs were developed and the psychometric properties of those constructs are presented in Volume III of this report.

TABLE 2.4

CHARACTERISTICS OF TEACHER, COUNSELOR, AND PRINCIPAL SURVEY FORMS ORGANIZED BY COMPONENTS OF THE CONCEPTUAL FRAMEWORK

VARIABLE SET	Respondent Group	No. of Items	Type Item	Typical Item(s)
DETERMINANTS OF IMPLEMENTATION Staff Characteristics	Teachers Counselors	11 9	Closed Ended	● Degree currently working toward: Masters, Doctorate, None ● For how many occupations other than in the field of education have you studied or prepared? None, one, two, three, four, or more?
Context Role	Teachers Counselors Principals	4 4 10	Open and Closed Ended	● How much planning time do you have during your regular school hours? ● About how many students are assigned to you for counseling? ● About what percentage of your students are Title I eligible?
Organizational Capacity	Teachers Counselors Principals	2 2 2	Open and Closed Ended	● How would you rate the general level of staff morale (or esprit de corps) of the professional staff in your school? a. very high morale among most of staff b. high morale among most of staff c. mixed—some high morale, some low morale d. low morale among most of staff e. very low morale among most of staff
Adoption Strategy	Teachers Counselors Principals	2 2 6	Open and Closed Ended	● How many hours, in total, have you participated in career education staff development activities since you began your involvement in career education? ● How frequently do faculty meetings concerned with career education take place in your school?
PROCESS DIMENSIONS Knowledge and Understanding	Teachers Counselors Principals	5 4 4	Closed Ended	Which one of the following best describes how adequately you are prepared for the implementation of a career education program? a. adequately prepared b. moderately prepared c. slightly prepared
Role/Behavior Classroom Activities	Teachers Counselors Principals	13 13 0	Five-point Frequency of Participation	● Advise individual students about career possibilities. ● Give career related interest and/or aptitude inventories to students. a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school
Linkage Activities	Teachers Counselors Principals	8 11 11	Five-point Frequency of Participation	● Help plan and coordinate a career education fair for students. ● Team with career education project staff to present career oriented activities to students. ● Conduct staff meetings to plan career education activities for the school. a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school
Extra-school Activities	Teachers Counselors Principals	10 12 8	Five-point Frequency of Participation	● Have students go on field trips to businesses and industries. ● Use parents to present career related programs to the students. ● Speak to parents and other community groups about the importance of career education. a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school
Value Internalization Perceived Benefits Perceived Burden Role of the School	Teachers Counselors Principals	40 40 40	Four-point Likert-type Opinion Items	● A career education program does not change the role of the counselor. ● Career education fosters premature career decisions. a. strongly agree b. agree c. disagree d. strongly disagree

Students

Data were needed from students* in the determinants, exposure and outcome components of the conceptual framework. All determinant and exposure information, as well as a small portion of the outcome data, were collected using the Student Information Form developed by NTS. Commercially available instruments were used to gather the remaining outcome data.

Demographic data and school experiences are considered as determinants of student exposure to career education. Exposure variables covered three areas: classroom activities, linkage activities and extra school activities. One outcome variable set, student plans and expectations, was included on the Student Information Form as well. Characteristics of the Student Information Form are presented in Table 2.5.

Other instruments were required in the outcome area which would (1) be suitable for pre- and posttesting, (2) cover the OE learner outcomes as comprehensively as possible, and (3) be usable across different grade levels. Reviews of commercially available instruments uncovered a number that purported to meet these requirements, though no single instrument was entirely satisfactory. As time and resource constraints prevented development of learner outcome instruments specific to the learner outcomes, NTS project staff selected a battery of instruments to gain complete coverage. This battery included instruments which could be used across grade levels as well as some only appropriate to particular grades. Reliability and validity data were incomplete on the

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*See page 2.64 for an explanation of the choice of grades five, eight, and eleven.

TABLE 2.5
CHARACTERISTICS OF THE STUDENT INFORMATION FORM

DOMAIN Variable Set	Respondent	No. of Items	Item Type	Typical Item(s)
DETERMINANTS Determinants of Student Exposure to Career Education • Student demographic characteristics • School experiences	All Student	10	Closed Choice	• Which one of the following best describes your grades so far in school? • How many brothers and sisters do you have?
PROCESS Exposure to Career Education Activities • Classroom	Grade 5	8	Five Choice—Frequency of Participation Items	• Use TV, tapes, filmstrips or radio to learn about jobs. • Take tests to find about my job interests and skills. a. Almost every day b. Once a week c. Once or twice a month d. Less than once a month e. Never
	Grades 8 & 11	11		
• Linkage	Grade 5	4	Five Choice—Frequency of Participation Items	• Attend a career fair (a place where many different people come to talk about their jobs) • Talk about the steps to take in making career decisions. a. Almost every day b. Once a week c. Once or twice a month d. Less than once a month e. Never
	Grade 8	8		
• Extra School	Grade 5	7	Five Choice—Frequency of Participation Items	• Go on field trips to business or industries to learn what people do in their jobs. • Take part in a school supervised work experience or work-study program. a. Almost every day b. Once a week c. Once or twice a month d. less than one a month e. Never
	Grades 8 & 11	8		
OUTCOME • Plans and Expectations	Grade 5	0	Closed Choice	• How often have you discussed your plans with the following people? • Which one of the following best describes plans for the year after you leave high school?
	Grade 8	5		
	Grade 11	10		

instruments; therefore NTS project staff undertook a construct validation study, based on pretest results for all students, and the pretest and posttest results of the subset of the original student sample who participated in all three phases of instrument administration. As validated instruments were available for the self-concept* and basic skills outcomes, these areas were not included in the validation study. For a complete report on the outcome instrumentation substudy, see Volume III of this report--a brief summary is included in the next section of this chapter.

The outcome instruments described below were used in this evaluation. Table 2.6 presents the learner outcome coverage expected, for the outcomes adopted for this study, based on face validity estimates. Table 2.7 summarizes descriptive information for each outcome instrument.

> The Self-Observation Scales (SOS), developed by A. Jackson Stenner and William Katzenmeyer of NTS, was chosen for the self-concept learner outcome. This instrument had previously been validated and nationally normed for the appropriate grade levels and had been used successfully in a number of career education evaluations. Depending on grade level, the SOS consists of from fifty to seventy-two items. Self-acceptance, self-security, and school affiliation are measured at all levels. Social maturity, social confidence, teacher affiliation, peer affiliation, and self-assertion scales are available at particular levels.
>
> The New Mexico Statewide Evaluation Program Test (NM5001 to NM5008) was developed by the Evaluation, Assessment, and Testing Unit, Department of Education, State of New Mexico, and was obtained from Westinghouse Learning Cooperation of Sunnyvale, California.
>
> NM5001 was reported to cover the "significance of work" and was deemed appropriate for all grade levels. The test contains twenty-five four point Likert-type opinion items.
>
> NM5002 covered "career decisionmaking" and, although developed for grades six through twelve, was administered only to grade eleven. Twenty items are included related to job supply and demand, reliable sources of information, and the order in which sources should be consulted. NM5003, NM5004, and NM5005 were not used in this evaluation.

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*The second-order factor scales developed from the SOS are discussed in Volume III, however.

Table 2.6

Analysis of Instruments by Expected Coverage of Learner Outcomes

	Grade 5		Grade 8		Grade 11	
Outcome	Name	# Items	Name	# Items	Name	# Items
1. Basic Skills	Achievement Test routinely used in the school system		Achievement Test routinely used in the school system		Achievement Test routinely used in the school system	
2. Good Work Habits	Ohio 6 *	10	Ohio 8	8	Ohio 10	12
					NM 5008	25
	PECE **	5	PECE	5	PECE	5
3. Work Values	Ohio 6	15	Ohio 8	8	Ohio 10	17
	NM 5001 ***	25	NM 5001	25	NM 5001	25
	PECE	6	PECE	6	PECE	6
4. Job Hunting	Ohio 6	1	Ohio 8	8	Ohio 10	4
					NM 5007	20
	PECE	8	PECE	8	PECE	8
5. Career Decision Making	Ohio 6	11	Ohio 8	23	Ohio 10	14
			NM 5006	20	NM 5006	20
	PECE	11	PECE	11	PECE	11
6. Continuing Education	Ohio 6	4	Ohio 8	3	Ohio 10	6
					NM 5002	20
	PECE	20	PECE	20	PECE	20
7. Placement					(To be included in the longitudinal design implemented by projects in subsequent years)	
8. Self Concept	SOS****	60	SOS	72	SOS	72
9. Career Awareness	Ohio 6	25	Ohio 8	12	Ohio 10	14
	PECE	25	PECE	25	PECE	25
TOTAL ITEMS BY GRADE		228		262		327

* Ohio Career Development Test Series

** Program of Exploration in Career Education Knowledge Test

*** New Mexico Statewide Evaluation Program Test Series

**** Self-Observation Scales

TABLE 2.7
CHARACTERISTICS OF STUDENT LEARNER OUTCOME INSTRUMENTS

Instrument	Respondent Grades	No. of Items	Item Types	Typical Item(s)	Administration Time (minutes)	Publisher
SELF OBSERVATION SCALE (SOS)						
• Intermediate	5	80	yes/no	• I think most people want to help me. • I often volunteer in school.	30	NTS
• Junior	8	72	yes/no	• I worry quite a bit over possible troubles. • I do a lot of things very well.	30	NTS
• Senior	11	72	yes/no	• Other students look to me for leadership. • Compared to one year ago, I worry more.	30	NTS
PROGRAM OF EXPLORATION IN CAREER EDUCATION KNOWLEDGE TEST (PECE)	6, 8, 11	75	19 matching 27 T/F 29 multiple choice	• When choosing an occupation a person should be concerned for himself, as well as society as a whole (T/F) • The "employment outlook" for an occupation refers to: a. demand for workers b. where workers are located c. where workers are expected to be located in the future d. all of the above	40	Georgia State Department of Vocational Education
NEW MEXICO CAREER EDUCATION TEST SERIES						
• NM 5001	6, 8, 11	25	Four-point Likert Type Opinion Items	Some jobs allow people to use their creativity. a. strongly agree b. agree c. disagree d. strongly disagree	15	Westinghouse Learning Corporation
• NM 5002	11	20	multiple choice	Suppose you wanted to become a member of the local police force. Which of the following would be the best source of information to find out about job requirements and duties? a. retired policemen b. the chief of police c. local employment agency d. mayor and town council	15	Westinghouse Learning Corporation
• NM 5006	8, 11	20	multiple choice	Which one of the following activities would BEST help you become a good librarian? a. library aide b. cheerleader c. English club member d. Library Club member	15	Westinghouse Learning Corporation
• NM 5007	11	20	multiple choice	When you are filling out an application blank, you should write "n/a" a. in blanks for which you don't know the answer b. in blanks for questions which don't apply to you c. in no blanks on the form d. in any blanks marked "for office use only"	15	Westinghouse Learning Corporation
• NM 5008	11	25	multiple choice	Toni is a policewoman. She would like to advance in her department. Which of the following is LEAST likely to help her advance? a. hope that she is lucky b. be punctual and cooperative on the job c. be pleasant to the people in her patrol area d. take police science courses after work	20	Westinghouse Learning Corporation
OHIO CAREER DEVELOPMENT TEST SERIES						
• Ohio 6	6	80	40 multiple choice 40 agree/disagree	• A store manager a. makes things to sell b. sweeps the floor c. supervises employees d. belongs to the Chamber of Commerce • I like to hear about the work people do (A/D)	40	Policy Studies in Education
• Ohio 8	8	68	34 multiple choice 34 agree/disagree	• When a car salesperson sells a car he or she is usually paid a. a salary b. a commission c. a wage d. a voucher • A career is the same thing as a job (A/D)	40	Policy Studies in Education
• Ohio 10	11	68	34 multiple choice 34 agree/disagree	• A brief outline of your training and work experience is called a. a biography b. an application c. a resume d. a covering letter • High school business programs are only for women (A/D)	40	Policy Studies in Education

NM5006 was reported to measure "decisionmaking choices." It, too, was developed for grades six through twelve, but the complexity of the questions led NTS project staff to propose its use only at the secondary level. Twenty questions are included asking students to select the optimal courses of action in hypothetical educational and occupational choice dilemmas.

NM5007, tapping "applying for a job," was used only at the high school level despite its development for students in grades six through twelve. NTS project staff judged the content of the twenty items related to making job inquiries, applying for jobs, and job interviews to be directed primarily to secondary level students.

NM5008, examining "job advancement," consists of twenty-five items related to maintaining a job and advancing in it, as well as attitudes toward success. Again, though developed for sixth through twelfth grade students, content dictated use only at the high school level.

The Program of Exploration in Career Education Knowledge Test (PECE) was originally developed by the Georgia State Department of Vocational Education. A revised version, prepared by William D. Myrick and Joan Z. Weiss in 1971, was obtained from the Center for Occupational Education, North Carolina State University, Raleigh, North Carolina.

The revised PECE consists of seventy-five items (nineteen matching, twenty-seven true-false, and twenty-nine multiple choice) and was reported to measure "knowledge of occupations, occupational requirements, and occupational environments." It was developed for administration to grades five through twelve and, following an examination of its readability, was judged to be appropriate for all grades in the common evaluation.

The Ohio Career Development Test Series (Ohio 6, Ohio 8, Ohio 10) was developed by Policy Studies in Education under contract to the Ohio State Department of Education and was obtained from the Education Research Council of America.

Ohio 6, developed for administration to sixth graders but judged to be readable for fifth graders as well, covered "knowledge of occupational characteristics, work habits, and work values." Forty of the sixty multiple choice items in the test relate to career awareness, decisionmaking, work habits, work values, economic knowledge, and continuing education. The other twenty center on job acquisition and maintenance.

Ohio 8, developed for, and administered to, eighth graders, covered "job hunting skills" as well as the topics included in the Ohio 6. Of the sixty-eight-multiple-choice items, thirty-four are concerned with career awareness, career decisions, economic knowledge, continuing education, and job hunting. Thirty-four items concern attitudes toward school, work, and self.

Ohio 10 covers the same areas as Ohio 8 and, though developed for grade ten, was used here for eleventh graders. This instrument also contains sixty-eight items, with a breakdown similar to that reported above for Ohio 8.

Basic Skills Instrumentation was not selected by NTS project staff. As most local project sites had ongoing testing programs, it was felt that imposing a common achievement battery would be too great a burden. Further, the achievement test area is one in which local boards frequently have made formal decisions about which tests to use. Because of these points, NTS has collected data from the variety of achievement tests already being used. These tests include the following:

- Stanford Achievement Test, published by The Psychological Corporation, New York, New York, and authored by R. Madden, E. F. Gardner, H. C. Rudman, B. Karlsen, and J. C. Mervin.
- Metropolitan Achievement Test, published by The Psychological Corporation, New York, New York, and developed W.W. Dorost, H.H. Bixler, J.W. Wrightstone, G.A. Prescott, and I.H. Balow.
- Iowa Test of Basic Skills, published by Houghton Mifflin Company, Boston, Massachusetts, and developed at the University of Iowa by A.N. Hieronymous and E.F. Lindquist.
- SRA Achievement Tests, published by Science Research Associates, Inc., Chicago, Illinois and developed by R.A. Naslund, L.P. Thorpe, and D.W. Lefever.
- Sequential Tests of Educational Progress, published by the Cooperative Test Division of Educational Testing Service, Princeton, New Jersey.
- Stanford Test of Academic Skills, published by The Psychological Cooperation, New York, New York and developed by E.F. Gardner, R. Collis, J.C. Mervin, and R. Madden.

Given the variety of different tests used for this learner outcome, it is convenient to use a common measure to allow uniform reporting of results across the sites. Some of the results were reported to us as percentiles, others were in raw score form, and still others were in grade equivalents. All results were converted by area transformation to normalized T scores using conversion tables or procedures. These tables or procedures were supplied by the projects, by the publishers, or in some cases, developed by NTS. T scores were selected, because their means of fifty and standard deviations of ten allow easier comparability.

Construct Definition and Validation

When observables are classified, typed, or otherwise grouped, a construct has been created. In the career education evaluation, the observables are the cognitive, affective, and process items responded to by teachers, counselors, administrators, and students. Regularity or pattern in the ways these items correlate with one another suggests the existence of some unobservable organizing influence(s). Our postulates about the nature of the organizing influence comprise the construct. Note that this is an intrinsic process; the construct definition is based on the inter-item correlations. Construct definition can be an extrinsic process, such as grouping together items whose content is judged to be similar. The extrinsic process breaks down, however, if the judge's perception of the items should differ from those of the subjects in the sample. The intrinsic process guarantees that the constructs developed exist in the sample. The construct may lack obvious content validity which will make the labeling process difficult; if the construct possesses consistency, though, it can be thought to represent a real organizing influence. A direct consequence of this is that if the existence of a treatment effect is being examined, as in this study, such an effect is more likely to be observed on a construct rather than on a set of items. Unless the item pool has been constructed carefully, some items are not likely to be closely related to the targeted behaviors. The use of constructs, on the other hand, gives the researcher access to the underlying attribute or behavior, thus providing more accurate measure of the effect.

The standard technique for intrinsic construct definition is factor analysis. In this study, the factor analytic procedure involved the following steps:

1. create the inter-item correlation matrix using squared multiple correlations for the initial estimates of the communalities.
2. perform a principal components analysis for the correlation matrix to yield n orthogonal factors.
3. rotate the factors to simple structure by using the Procrustean (Hurley & Cattell, 1962) method to obliquely rotate the orthogonal factors into maximum conformity with the idealized principal components loadings.

The last step is motivated by knowledge that, in nature, it is highly unlikely that organizing influences will be uncorrelated. Following the lead of Cattell and Tsujioka (1964) in their exposition of "structural psychometrics," "orthogonality is rejected as a mechanical carrying over of an elementary mathematical simplicity when it is inappropriate" (p.27). The resultant factor structure provides a mechanism for combining the items into factor scores which serve as the construct measures.

Factors were identified using Cattell and Tsujioka's (1964) consistency criteria of homogeneity (across items) and transferability (across people). Strictly speaking, "homogeneity" as a statistical term refers to the average inter-item correlation; it does not take test length into account. Consequently, "internal consistency" which reflects both test length and "homogeneity" was used as the measure of a factor's univocality. The number of orthogonal factors in the principal components solution, which accounted for significant proportions of the variance, served as an upper limit to the number of factors obliquely rotated.

The learner outcomes of career education include two major classes of effects: (1) Changes in career related knowledge, and (2) changes in attitudes towards the world of work. Consequently, the test battery (Ohio, PECE, and New Mexico) was treated as two separate sets of instruments; a set of cognitive items and a set of affective items. The classification of the test items is in Table 2.8. The cognitive items generally measure whether a student has acquired and can then recall certain facts related to careers; all responses are scored as either right or wrong. The affective items measure career-related attitudes, either by asking directly for opinions or, indirectly, by asking questions related to activity levels. Scoring procedures for all items are detailed in the Instrumentation Substudy. To minimize biases in the analyses caused by most respondents not answering an item correctly or most respondents indicating agreement with an item, the data matrices were augmented by their inverses. This procedure, suggested by Gorsuch, assures that items with the same response set will have the same means and approximately the same variances. The correlation matrices were computed from the augmented data matrices by

Table 2.8
Classification of Learner Outcome Items

Test	Affective	Cognitive	How Scored
Ohio 6, first half		35 questions	2=right, 1=wrong
Ohio 6, second half	35 questions		raw responses used where 1=agree, 2=no opinion, 3-disagree
Ohio 8, first half		34 questions	2=right, 1-wrong
Ohio 8, second half	34 questions		raw responses used where 1=agree, 2=no opinion, 3=disagree
Ohio 10, first half		34 questions	2=right, 1=wrong
Ohio 10, second half	34 questions		raw responses used where 1=agree, 2=no opinion, 3=disagree
P.E.C.E.		75 questions	2=right, 1=wrong
New Mexico 5001	20 questions		1=strong negative attitude 2=negative attitude 2.5=no response 3=positive attitude 4=strong positive attitude
New Mexico 5006			
first half		10 questions	2=right, 1=wrong
second half, first questions	1 question		.25=no response 1=weaker attitude 2=stronger attitude
second half	9 questions		.5=done nothing .75=no response 1.5=done one of two things 2.5=done both things
New Mexico 5002		20 questions	2=right, 1=wrong
New Mexico 5007		20 questions	2=right, 1=wrong
New Mexico 5008		20 questions	2=right, 1=wrong

factor analysis. Four affective and five cognitive constructs were identified. Transferability was the criterion given the most weight, as the identified constructs spanned all grade levels where the component items had been administered. Internal consistencies (calculated using coefficient alpha reliability formulas) for most of the constructs were moderate, and the proportion of variance explained in the principal components analyses indicated that any additional factors would probably be accounting for only unique, rather than common variance. The construct labels, items with high loadings on the construct, and coefficients of homogeneity are presented for each grade level in Tables 2.9, 2.10, and 2.11. In general, the constructs were test specific, so that projects not administering the entire test battery could still make use of many of the constructs. To further facilitate the use of these constructs at the local level, unweighted, unstandardized item scores were used to calculate the construct scores. These procedures are described fully in the Instrumentation Substudy, Volume III of this report.

While the internal consistencies of some of the constructs were quite low, their transferability caused them to be retained. There is always some concern in construct definition that the "baby will be thrown out with the bathwater." There was effort to be sure, however, that learner outcome constructs which might be sensitive to treatment were not overlooked.

The internal consistency coefficients of the individual test batteries also are presented in Tables 2.9, 2.10, and 2.11.

Table 2.9

Grade 5: Construct Labels, # Items, Sample Items, and Internal Consistencies

Construct Label	# Items	Sample Items	Internal Consistency
Occupational Self-Awareness	25	Ohio, Part 2 (3,7,8,16,34) New Mexico 1 (7,10)	.73
Work Values	11	New Mexico 1 (15,16,21,23,24)	.62
Attitudes Towards Work	14	New Mexico 1 (1,3,6) Ohio, Part 2 (13,17,20)	.70
Knowledge of Work Values	23	PECE (17,23,35,40,46)	.75
Decision Making	35	Ohio, Part 1 (12,17,18,31) PECE (16,54,55)	.78
Job Seeking/Job Getting	12	Ohio, Part 1 (4,9,10,11,14)	.63
Economic Awareness	6	PECE (47,59,62,63,68)	.62
Test			
Ohio, Part 2	35		.57
New Mexico 1	25		.75
Ohio, Part 1	35		.73
PECE	75		.78

Table 2.10

Grade 8: Construct Labels, # Items, Sample Items, and Internal Consistencies

Construct Label	# Items	Sample Items	Internal Consistenc
Occupational Self-Awareness	26	Ohio, Part 2 (2,9,10, 15,30)	.81
Work Values	21	New Mexico 1 (10,11,14, 21,23)	.81
Interest in Career Education	9	New Mexico 6 (16,17,18, 19,20)	.73
Attitudes Towards Work	5	New Mexico 1 (1,6,13) Ohio, Part 2 (26,33)	.40
Knowledege of Work Values	42	PECE (8,17,23,35,46)	.90
Decision Making	8	New Mexico 6 (1,3,5,7,10)	.65
Job Seeking/Job Getting	22	Ohio, Part 1 (11,15,17,32) PECE (7,36,68)	.63
Career Awareness	20	Ohio, Part 1 (10,14,16, 25,34)	.83
Economic Awareness	5	PECE (48,59,60,63,68)	.47
Test			
Ohio, Part 2	34		.36
New Mexico 1	25		.79
New Mexico 6	10		.71
Ohio, Part 1	34		.83
PECE	75		.88
New Mexico 6 (1-10)	10		.66

Table 2.11

Grade 11: Construct Labels, # Items, Sample Items, and Internal Consistencies

Construct Label	# Items	Sample Items	Internal Consistency
Occupational Self-Awareness	28	Ohio, Part 2 (3,8,9, 10,19)	.78
Work Values	21	New Mexico 1 (10,11,12, 17,21)	.81
Interest in Career Preparation	8	New Mexico 6 (16,17,18, 19,20)	.75
Attitudes Towards Work	3	New Mexico 1 (1,6,13)	.45
Knowledge of Work Values	46	PECE (17,35,36,40,46)	.90
Decision Making	61	New Mexico 2 (6,13) New Mexico 6 (3,10) New Mexico 7 (14,18) New Mexico 8 (5,9)	.95
Job Seeking/Job Getting	17	Ohio, Part 1 (2,5,11,14) PECE (50,58,64)	.75
Career Awareness	15	Ohio, Part 1 (3,8,13,16, 27)	.83
Economic Awareness	3	PECE (59,63,68)	.45
Test			
Ohio, Part 2	34		.46
New Mexico 1	25		.81
New Mexico 6 (11-20)	10		.73
Ohio, Part 1	34		.82
PECE	75		.89
New Mexico 6 (1-10)	10		.73
New Mexico 2,7,8	65		.94

The coefficients are not directly comparable due to variations between numbers of items in the tests and numbers of items in the constructs. They do serve to illustrate, however, that the constructs possess relatively good univocality.

In addition to the learner outcome battery, student outcome was also measured with achievement tests in reading and mathematics, and the Self Observation Scales (SOS). Since the SOS results in seven different measures (which had been previously defined by factor analysis of the norming data), these measures were input to a second-order factor analysis. The purpose of this was to reduce the outcome variables to a more concise set of constructs, thus aiding in the presentation and interpretability of the results. For all three grade levels, two factors were sufficient to account for at least fifty percent of the variance in the first order SOS scores. This, in conjunction with the high transferability of the second order constructs across the grade levels, indicated that no additional factors were necessary. The two constructs were identified as perceptions about school and perceptions about the relationship of self to others. Their internal consistencies are presented in Table 2.12 for each grade level and their underlying first-order scales.

Unlike the learner outcome constructs, the two second-order SOS construct scores were computed using the factor analytically derived regression weights applied to standardized scores. Since the SOS cannot be field scored, however,

Table 2.12

SOS Constructs

Construct	First Order Scale	Internal Consistency
Grade 11		
Academic Perceptions	School Affiliation Teacher Affiliation	.86
Social/Personal Perceptions	Peer Affiliation Self-Acceptance Social Confidence Self-Security Self-Assertion	.65
Grade 8		
Academic Perceptions	Teacher Affiliation School Affiliation	.84
Social/Personal Perceptions	Peer Affiliation Self-Acceptance Self-Assertion Self-Security Social Confidence	.74
Grade 5		
Academic Perceptions	School Affiliation Self-Acceptance Teacher Affiliation	.78
Social/Personal Perceptions	Peer Affiliation Social Maturity Social Confidence Self-Security	.75

this does not represent a limitation on local projects with respect to using the SOS in future evaluations.

The third instrument submitted to the construct definition procedure was the teacher/counselor/administrator value internalization or opinion form. One of the purposes of the study was to examine the effects of the determinants of implementation on opinions regarding career education; it is more likely that any effect will be reflected in opinion constructs rather than in the the individual items. Since all three groups responded to the same questionnaire, the teacher, counselor, and administrator data were pooled for input to the factor analysis. Examination of the variance accounted for in the principal components solution indicated that three factors were sufficient to explain the common variance. The construct labels, items with high factor loadings, and the internal consistencies are presented in Table 2.13.

Table 2.13

Practitioners' Value Internalization Constructs

Construct Label	# Items	Items	Internal Consistenc
Perceived Benefits	18	3,6,16,18,37	.83
Perceived Burden	13	7,24,29,34,40	.65
Role of Schools	7	12,21,22,23,36	.66

Two of the questionnaire items were not grouped with any of the constructs. Judging from the internal consistencies, two factors probably would have been sufficient. The retention of the extra factor was deemed advisable, however, to ensure that any effects on attitude would not be overlooked. As with the SOS, the three opinion constructs were scored using the factor analytically derived regression weights applied to standardized scores. For those wishing to use this instrument in other evaluations, the factor weights have been included in Volume III. It is the opinion of NTS project staff that suitable results could be obtained with unit weights, however.

Sampling Plan

The sample consists of fifteen projects selected from the universe of K12 incremental improvement projects funded for one year by the Office of Career Education in the summer of 1976. Although the sample of fifteen projects was not intended to be representative of career education projects nationally, the selected projects do vary widely in their conceptualization, history, level of financial support, target audiences, and programmatic strategies. The sample seems to differ from a representativ sample of the 1976 OCE projects in primarily two ways. First, more mature projects were given priority in the selection--project which had a two or three year history (funded through OCE or other sources) or projects with experienced staff were classified as mature. Second, only projects whose proposals emphasized stude learner outcomes (as opposed to staff outcomes) were eligible for selection. All fifteen projects selected for the sample agreed to participate in the evaluation. Each selected LEA was assigned a pseudonym to protect its anonymity. In this report, only the pseudonym is used for project identification. Chapter 3 includes a brief discussion of the characteristics of each project.

Table 2.14 summarizes the distribution of the sample of local education agencies (LEAs) by percent minority and by student enrollment. Of the fifteen projects, two are major cities, six are medium-sized cities, two are suburbs, two are small towns, and three are in rural areas. As mentioned, these projects were

Table 2.14

Distribution of Sample (LEAs) By Percent Minority and By Student Enrollment

Percent Minority	Enrollment			
	0-9,999	10,000-24,999	25,000+	Total
45+	1	-	1	2
30-44	-	1	1	2
15-29	3	1	1	5
0-14	4	1	1	6
Total	8	3	4	15

selected for their proposals' emphasis on student learner outcomes. Project differences in outcome emphases, as reflected in their project funding proposals, are presented in Table 2.15.

The extent to which the fifteen career education projects selected for this evaluation are representative of the types of activities being implemented across the nation under the banner of career education is difficult to determine. Several of the participating school districts have been cited either by their respective SEAs or the USOE as models for their past career education efforts, whereas other projects are embarking on a first experience with career education. These differences suggest diversity of program approach and maturity but do not enlighten us on the representativeness of program philosophy and strategies. An admittedly subjective opinion is that these projects purport to implement activities which are representative of the types of activities generally subsumed under the concept of career education. However, we wish to caution the reader that this study was not conceived as a national evaluation of career education and, consequently, little attempt was made to build into the evaluation representative variation in program philosophies or strategies. Similarly, the universe of OCE-funded projects, from which the fifteen projects studied in this evaluation were selected, are themselves not a representative sample of national career education efforts. The fact that considerable diversity in programmatic approach exists across the fifteen projects is valuable when

TABLE 2.15

LEARNER OUTCOME COVERAGE BY PROJECT*

PROJECT	LEARNER OUTCOMES								
	Basic Skills	Good Work Habits	Work Values	Job Hunting	Decision Making	Continuing Education	Placement	Self Concept	Career Awarene
Better Springs	S		P		P				P
Career City	P	S	S	P	P	P		S	P
Cognitive Camp	P	P	P	S	P	P			P
Fallstaff			S		P	P			P
Jobland	P	P	P	S	S	S	P	P	P
Middlesex	P	P	P	S	P	P		S	P
Mt. Exploration	S				P	P			P
Opportunity City	S	S	P		S	P	P	P	P
Prepton	S	P	P		S	P	S		P
Awaresville	P	S	S	P	P	P	S	P	P
Studytown	P	P	P	P	P	P	S	S	P
Treksville		S	P	P	S	S	P	S	P
Unique Domain	P	P	P	P	P	P	P	P	P
Vocation Beach	P	S	P	P	P	P	P	P	P
Workville	P	S	P	S	P	P	S	P	P

* A P indicates primary emphasis was given this outcome and S indicates secondary emphasis in the project's grant proposal. Absence of a P or S does not necessarily reflect the lack of actual program emphasis; nor does presence of an outcome in the proposal necessarily reflect actual operational emphasis.

studying process-outcome relationships, but does not necessarily further the cause of generalizability of evaluation findings. The fifteen participating projects incorporate a wide range of program activities generally labeled career education activities; however, the incidence of such activities nationally remains unknown, and thus the representativeness of the fifteen projects is indeterminate. For additional information on this topic, see Chapter 3 of this report.

Following project selection, it was necessary to choose student samples. Students were selected from grades five, eight, and eleven for the "common" evaluation. To meet local evaluation needs, a variety of other grade levels were selected as well. (It should be noted that data based on those other grades are not reported to any great extent in this report). Grades five, eight, and eleven were selected to reflect the progression from career awareness (elementary grades) to career exploration (middle grades) to career preparation (senior high school grades) evident in most projects.

Originally it was believed that no control students would be available, in that most of the projects were implemented district-wide. Closer examination of each project revealed that control or, more correctly, nontarget students could be found in six of the fifteen sites. The projects identified these nontarget students as those who were enrolled in schools where there were no plans to inservice teachers or provide other project support. In a few cases, fifth grade students in target schools, but with nontargeted teachers, also were identified. Although the projects indicated that these nontarget students would not differ substantially from target students across important background characteristics, the data presented in Chapter 4 show that substantial differences were in fact present. Further, the exposure and outcome data reported in chapters 5 and 6, respectively, show that these nontarget students received some career education treatment and made gains on the learner outcome constructs, indicating at least some contamination. Although six sites offered nontarget students, only three sites (Prepton, Studytown, and Treksville) provided substantial numbers of such students to the evaluation.

Teachers, counselors, and principals were designated as target or nontarget by the projects in a parallel manner. If located in schools not served by the project, or if not scheduled to be inserviced in career education by the project, the practitioners were defined as being nontarget. The evaluation team was assured that nontarget practitioners were not to be, or had not been, inserviced. The data presented in chapters 4 and 5, however, indicate that this was not the case.

The sampling design was further complicated by constraints imposed by the unique evaluation designs. The sampling plan had to ensure that adequate samples were available within each project as well as across projects. The result of this constraint was a larger overall sample size than typically would be required.

Fifth grade classrooms were randomly selected from designated target schools. In LEAs with large student populations, target schools were selected randomly; in small districts, usually all target schools were included. Eighth and eleventh grade homeroom classrooms were randomly selected from target junior and senior high schools. In the six districts in which nontarget students were available, similar selection procedures were used to draw the non-target samples. Table 2.16 describes the student samples planned prior to pretesting for each of the fifteen sites and the actual sizes of the "matched" student samples (i.e., those students for whom data were available from both pre- and posttesting and from process testing).

Within each target and nontarget school teachers*, counselors and administrators were sampled. One of three sampling schemes was employed. Either all teachers in a school were included in the sample, a thirty-three percent random sample of teachers within a school were selected, or those teachers who spent most of their instructional time with the sample students were included. The latter choice was frequent at the high school level. Choice of sampling schemes was dictated by the project sites based upon administrative feasibility. All counselors in the sampled school were included in the planned sample. Similarly, at least one administrator from each school, usually the principal, was included in the sample. Tables 2.17, 2.18, and 2.19 present the planned and actual sample sizes for each site; Table 2.20 summarizes the planned and actual sample sizes, across the fifteen sites, for each respondent group. Generally, the matched student samples are

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*At the secondary level the term "teacher" as used in this report refers to teachers of English, math, science, or social studies. Teachers of physical education, music, art, etc., were not sampled in this evaluation.

TABLE 2.16
PLANNED AND MATCHED* STUDENT SAMPLES BY PROJECT**

PROJECT	Target						Nontarget						Total	
	5		8		11		5		8		11			
	Planned	Match	Planned	Match	Planned	Match	Planned	Match	Planned	Match	Planned	Match	Planned	Match
Better Springs			210	405	210	126					210	145	630	676
Career City	360	291	360	459	360	229							1080	979
Cognitive Camp	210	136	390	251	360	6	210	121					1170	514
Fallstaff	450	328	360	547	300	120							1110	995
Jobland	450	522	300	567	300	461							1150	1550
Middlesex	210	81											210	81
Mt. Exploration	300	160	420	317	260	312							1080	789
Opportunity City	420	119	420	75	420	82							1260	276
Prepton	210	135	240	418	240	405	210	209	240	138	240	32	1380	1337
Awaresville					150	7					150	0	300	7
Studytown	300	256	300	257	300	161	300	339	300	245	300	145	1800	1403
Treksville	240	94	210	0	120	67	240	0	210	0			1020	161
Unique Domain	240	126	240	128	240	88	240	20	240	71			1200	433
Vocation Beach	180	143	180	97	180	124							540	364
Workville	450	285	390	263	390	207							1230	755
TOTALS	4020	2676	4020	3784	3930	2395	1200	689	990	454	900	322	15060	10320

*Matched samples include those for whom parallel data are available across each of the three testing periods.

**A blank indicates that no students were sampled at that particular grade level, usually as a result of the project's programmatic emphases. Often other grades were substituted for the unique evaluations; those other grades are not included in this table.

TABLE 2.17
PLANNED AND ACTUAL TEACHER SAMPLES BY PROJECT

PROJECT	Target						Nontarget						Total	
	5		8		11		5		8		11			
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Better Springs	*		75	66	75	68					20	22	170	156
Career City	21	22	27	15	19	15							67	52
Cognitive Camp	19	15	49	6	29	17	19	13		8		30	116	89
Fallstaff	25	12	37	25	32	23							94	60
Jobland	26	27	34	26	30	21							90	74
Middlesex	10	9											10	9
Mt. Exploration	10	12	13	13	14	13							37	38
Opportunity City	11	11	13	8	13	6							37	25
Prepton	8	6	13	19	13	18	4	1	6	0	6	0	50	44
Awaresville					25	37					25	0	50	37
Studytown	15	38	15	28	15	11	15	0	15	0	15	0	90	77
Treksville	17	5	19	19	22	0	11	3	12	13	14	0	95	40
Unique Domain	19	9	40	5	20	4	3	0	5	5			87	23
Vocation Beach	8	7	12	9	10	16							30	32
Workville	19	10	24	7	31	45							74	62
TOTALS	208	183	371	246	348	294	52	17	38	26	80	52	1097	818

*A blank indicates no teachers were sampled of the type indicated in that particular site.

2.68

TABLE 2.18

PLANNED AND ACTUAL COUNSELOR SAMPLES BY EACH PROJECT

PROJECT	Target		NonTarget		TOTAL	
	Planned	Actual	Planned	Actual	Planned	Actual
Better Springs	10	10	5	3	15	13
Career City	12	9	*		12	9
Cognitive Camp	6	4			6	4
Fallstaff	13	11			13	11
Jobland	11	9			11	9
Middlesex	6	5			6	5
Mt. Exploration	11	9			11	9
Opportunity City	12	9			12	9
Prepton	6	1	3	1	9	2
Awaresville	3	14	2	0	5	14
Studytown	12	14	12	4	24	18
Treksville	14	9	8	5	22	14
Unique Domain	20	7	4	0	24	7
Vocation Beach	6	3			6	3
Workville	10	12			10	12
TOTALS	152	126	34	13	186	139

* A blank indicates no nontarget counselors were available in that project.

TABLE 2.19

PLANNED AND ACTUAL AMINISTRATOR SAMPLES BY PROJECT

PROJECT	Target		Nontarget		TOTAL	
	Planned	Actual	Planned	Actual	Planned	Actual
Better Springs	3	4	2	1	5	5
Career City	15	14	*		15	14
Cognitive Camp	7	5	1	5	8	10
Fallstaff	14	10			14	10
Jobland	17	15			17	15
Middlesex	6	6			6	6
Mt. Exploration	10	9			10	9
Opportunity City	11	8			11	8
Prepton	6	1	2	0	8	1
Awaresville	2	4	2	0	4	4
Studytown	15.	15	15	10	30	25
Treksville	14	11	8	7	22	18
Unique Domain	20	12	4	1	24	13
Vocation Beach	3	3			3	3
Workville	16	11			16	11
TOTALS	159	128	34	24	193	152

* A blank indicates no nontarget administrators were available.

TABLE 2.20

SUMMARY OF PLANNED AND ACTUAL SAMPLE SIZES

GROUP	Target		Nontarget		TOTAL	
	Planned	Actual	Planned	Actual	Planned	Actual
Students (total)	11970	8855*	3090	1465*	15060	10320*
Grade 5	4020	2676	1200	689	5220	3365
Grade 8	4020	3784	990	454	5010	4238
Grade 11	3930	2395	900	322	4830	2717
Teachers (total)	927	723	170	95	1097	818
Grade 5	208	183	52	17	260	200
Grade 8	371	246	38	26	409	272
Grade 11	348	294	80	52	428	346
Counselors	152	126	34	13	186	139
Administrators	159	128	34	24	193	152

* These student sample sizes are for the matched samples only.

substantially smaller than planned due to mobility rates and "matching" difficulties. Since few of the samples were selected on a purely random basis, the reduction in sample size is not necessarily harmful. Nonetheless, significant sample attrition demands caution in generalizing the results presented in this report. The characteristics of each sample group are compared to national data, when available, in Chapter 4.

An additional problem needs to be considered for the student sample. Substantial attrition took place in the numbers of students taking the tests. The planned sample of fifth, eighth, and eleventh grade students produced 17895 usable pretest cases and only 14663 posttest cases. Further, of those who took pre-and posttest, 10320 (or 72.2 percent) also could be matched to the Student Information Form. To this problem of attrition must be added the dropping of whole tests from the posttest battery by a few sites. As a result of these two problems, the actual matched samples were substantially smaller than those with which we began. Whether this decline has affected result generalizability adversely is, of course, a matter of judgement. This study was not designed as a national evaluation; however, it is still necessary to consider the representativeness of the matched samples resulting from the attrition process. As the only complete data on the characteristics of the student samples were gathered by the Student Information Form (SIF), the matched sample can be compared only to all those who completed that process instrument. In Table 2.21, the sex and ethnicity characteristics of the matched samples are compared to those of all SIF respondents. Those results indicate that at least at the overall level, the matched sample is only slightly different on ethnicity from the process sample. Thus at least on this basis, the results from the matched student samples can be generalized to the process sample.

As the reader probably has noted, sample attrition was not uniform across projects and, further, the planned sizes of the various respondent group samples within the projects were only roughly proportional to begin with. Differential attrition has left some of the respondent group samples highly dependent on individuals from only a few of the projects. Had this been planned as a true national evaluation, or had the samples been selected both randomly and proportionate to district size, then the actual samples would have to be weighted to compensate for differential attrition. We are fortunate that this evaluation was not designed to fit such rigid parameters; the selection of satisfactory weighting schemes is a difficult and often controversial task.

Table 2.21
Comparison of Process and Matched Student Samples by Ethnicity and Sex

Grade by Race and Sex	TARGET Match	 Process**	NONTARGET Match	 Process	TOTAL* Match	 Process
Grade 5 % Minority % Female	N = 2559 25% 51%	N = 3512 29% 49%	N = 671 51% 49%	N = 950 52% 53%	N = 3230 31% 50%	N = 4462 33% 50%
Grade 8 % Minority % Female	N = 3487 19% 49%	N = 4802 21% 50%	N = 422 52% 53%	N = 582 50% 54%	N = 3909 23% 49%	N = 5384 24% 50%
Grade 11 % Minority % Female	N = 2257 23% 54%	N = 3072 24% 53%	N = 310 37% 50%	N = 510 44% 49%	N = 2567 25% 53%	N = 3582 28% 53%

* Total includes target and nontarget students.

** Process includes all students for whom usable Student Information forms are available.

Data Collection and Reduction Procedures

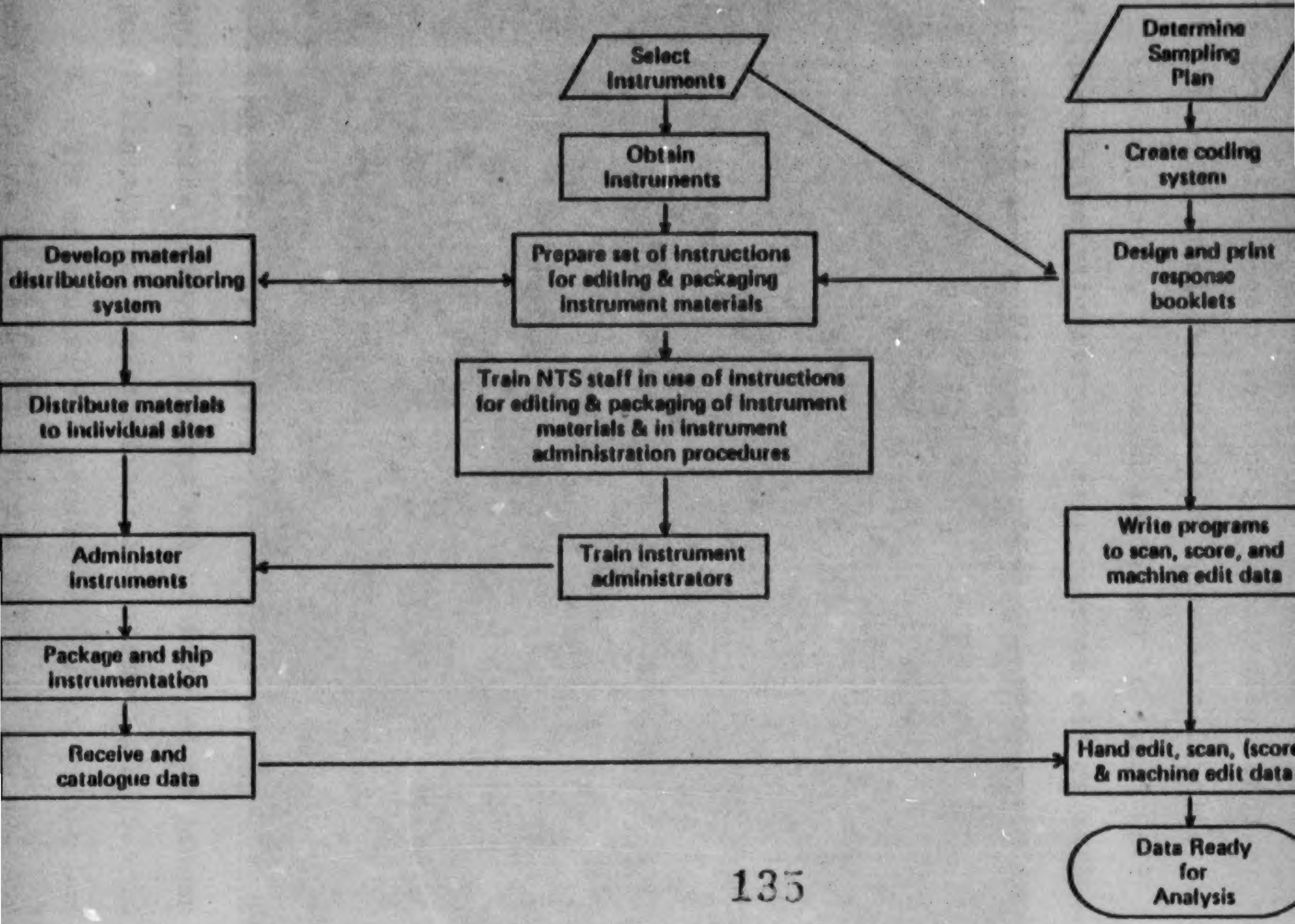
In order to implement the data collection and reduction procedures in this evaluation, a concise, step-by-step process was devised to facilitate each of the activities. Figure 2.3 presents a flow chart of the steps necessary to collect and reduce the data in the determinants, implementation/process, and outcome domains. There are three interfacing activities: (1) obtaining the instrumentation and training the administrators; (2) distributing materials and administering the instruments; and, (3) designing, scanning, scoring, and editing the response sheets. Each of these activities will be expanded in the next three sections.

Obtaining Instruments and Training Administrators

Following the selection and development of instruments (described extensively in Chapter 4, Volume III of this report), necessary forms were purchased or produced in the needed quantities. This was a relatively straightforward process for the commercially available instruments selected for the learner outcomes; however, instrument development for the determinants and implementation/process domains had to await OMB approval. NTS staff developed a detailed manual to be used by the administrators, which included a sample of each instrument and instructions for administering, editing, and packaging the materials for return to NTS. A training session was held for the NTS field staff which covered administration and data collection procedures specific to each site.

Figure 2.3

Flow Chart for Data Collection and Reduction Procedures


Select Instruments
Obtain Instruments
Prepare set of instructions for editing & packaging instrument materials
Train NTS staff in use of instructions for editing & packaging of instrument materials & in instrument administration procedures
Train instrument administrators
Develop material distribution monitoring system
Distribute materials to individual sites
Administer instruments
Package and ship instrumentation
Receive and catalogue data
Determine Sampling Plan
Create coding system
Design and print response booklets
Write programs to scan, score, and machine edit data
Hand edit, scan, (scor
& machine edit data
Data Ready for Analysis

To train local administrators selected by the project directors, orientation sessions were conducted in each of the project sites prior to each testing session. In addition to going through the manual in detail, NTS staff worked with instrument administrators in the following areas:

1) Background information on the evaluation and the importance of the instrumentation for answering the policy evaluation questions.
2) Ethical considerations in preserving confidentiality of the information and the responsibility of the administrator for precise reporting.
3) Field preparation, which included the preparation for instrument administration, personal appearance, voice appeal, and etiquette during instrument administration.
4) Handling situations in which persons are uncomfortable, suspicious, or otherwise reluctant to participate.
5) Techniques of administration, including forms security, disposition of defective instruments, and general administrative duties.
6) Simulated situations for the administration of each instrument.

Distribution of Materials and Administration of Instruments

A list of testing locations, addresses and telephone numbers was compiled. A logging sheet was developed which contained identifying information, together with columns, to record the quantities of materials to be sent to each location, the means to be used for shipment, the expected return dates and actual return dates. Table 2.22 illustrates the variety of tests used across sites. To facilitate instrument administration, a schedule was prepared for each set of respondents by the project director and the instrument administrators. Administrators were instructed to check their materials ensuring that they had the correct set and correct numbers of instruments, response booklets, and appropriate administration manuals. Administrators read all items to

TABLE 2.22

CAREER EDUCATION OUTCOME INSTRUMENTS USED FOR PRE AND POSTTESTING BY GRADE AND PROJECT

PROJECT	INSTRUMENTS																			
	GRADE 5					GRADE 8						GRADE 11								
	SOS	BASIC SKILLS	OHIO 6	NM 5001	PECE	SOS	BASIC SKILLS	OHIO 8	NM 5001	NM 5006	PECE	SOS	BASIC SKILLS	OHIO 10	NM 5001	NM 5002	NM 5006	NM 5007	NM 5008	PECE
Better Springs[1]								X			X			X						X
Career City	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cognitive Camp	X		X		X	X		X			X	X		X						X
Fallstaff	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jobland	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Middlesex[2]	X	X	X	X	X															
Mt. Exploration	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X
Opportunity City	X			X		X			X	X		X			X	X	X	X	X	
Prepton	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X
Awaresville[3]												X	X	X	X	X	X	X	X	X
Studytown	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Treksville	X	X	X			X		X				X		X						
Unique Domain	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X
Vocation Beach	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Workville	X	X			X	X	X				X	X								X

1. Tested at 8th & 11th grade levels only
2. Tested at 5th, 9th and 10th grade levels
3. Tested at 11th grade level only

fifth grade students to ensure that reading ability did not interfere with student response. Hand editing was used to eliminate stray marks on the answer sheets; answer sheets which were not to be scanned also were edited. The data then were keypunched or scanned and entered onto the computer disc for machine editing.

Design of Response Sheets and Processing

Each school district was assigned an identification number and a pseudonym. The pseudonym was developed at OCE's request, in order that any reference to particular school districts in this report would be masked. Identification numbers were assigned to each school, each test administrator and each teacher.

The uniqueness of student identification numbers was assured by using several parameters to define the identification field. These parameters included the teacher identification number, the school district's number, and a unique number for each student in each of the class periods and grade levels in which testing was done. If the school system chose to use its own student identification system, this was included instead of the system developed by NTS. The response booklet, which was used at pretest time, required that student identification information be coded on each of the pages. The posttest and process answer sheets were redesigned as single sheets and identification information was entered on the sheets by computer.

Programs were developed and tested to scan, score, and machine edit the data. Errors discovered in test runs were used to revise the programs. Specific data collection and reduction procedures for each instrument are summarized in Table 2.23.

TABLE 2.3

SUMMARY OF DATA COLLECTION AND REDUCTION PROCEDURES

Instrument	Date(s) Administered	Respondent Group	Approximate Sample Size	Data Collection Method	Data Reduction Method
Community Census Data Form	Feb-March 1977	NTS Staff	NA	Census Data Review	Hand tabulation and summarization
LEA Characteristics Form	Feb-March, 1977	Project Staff	15	Mailed questionnaire with telephone followup	Hand coded and tabulated
Implementation/Process Observation Form	March-April, 1977 Sept, 1977	Project Staff	15	Semistructured on-site interview, with telephone followup	Hand coded and tabulated
Student Information Form	Spring, 1977	Students	16,000	Group administration by local test administrators; read to grade 5 students	Hand and machine edited; matched with learner outcome files
Counselor Survey Form	Spring, 1977	Counselors	186	Closed choice questionnaire; individual or group administration	Hand and machine edited; opinion items factor analyzed; aggregated to building level; merged with student files
Principal Survey Form	Spring, 1977	Building Administrators	193	Closed choice questionnaire; individual or group administration	Hand and machine edited; opinion items factor analyzed; aggregated to building level; merged with student files
Self Observation Scales	Fall, 1976 Spring, 1977	Students	15,000	Group administration by local test administrators, read to grade 5 students; machine readable forms	Hand and machine edited; first and second order factor analyzed; pre-post and student information form matched
Achievement Tests	Fall, 1976 Spring, 1977	Students	11,000	Procedures normally used in participating projects	Hand edited; machine edited; converted to standardized t scores; pre-post and student information form matched
Program in Exploration of Career Education (PECE)	Fall, 1976 Spring, 1977	Students	14,000	Group administration by local test administrators; read to grade 5 students; machine readable forms	Hand edited, machine edited, and scored; factor analyzed, converted to standardized t scores, pre-post and student information form matched
Ohio Career Development Test Series	Fall, 1976 Spring, 1977	Students	13,000	Group administration by local test administrators; read to grade 5 students; machine readable forms	Hand edited, machine edited, and scored; factor analyzed, converted to standardized t scores, pre-post and student information form matched
Ohio 6		Grade 5	4,000		
Ohio 8		Grade 8	5,000		
Ohio 11		Grade 11	4,000		
New Mexico Education Test Series:	Fall, 1976 Spring, 1977	Students	13,000	Group administration by local test administrators; read to grade 5 students; machine readable forms	Hand edited, machine edited, and scored; factor analyzed, converted to standardized t scores, pre-post and student information form matched
NM 5001		Grades 5, 8 & 11	13,000		
NM 5002		Grade 11	4,000		
NM 5006		Grades 8 & 11	9,000		
NM 5007		Grade 11	4,000		
NM 5008		Grade 11	4,000		

Data Analysis

In addition to simple descriptive statistics such as means, standard deviations, standardized mean differences, zero order correlations and partial correlations, several multivariate analysis techniques were used in this evaluation. In this section we briefly review three techniques (factor analysis, regression/commonality analysis, and canonical redundancy analysis) employed frequently throughout the report. The description of these analytic techniques will focus on the logic of the methods and will not present mathematical derivations, or specific computational formulae.

Factor Analysis

> Factor analysis is disarmingly simple in its basic purpose and becomes complex only through its ramifications. All that factor analysis purports to do is examine a matrix expressing the correlations of each varible with every other variable. Small matrices of intercorrelations can be inspected visually to see which variables seem to covary together but are independent of others in the matrix. In an important sense factor analysis is a formal decision making process to explicate subsets of covarying variables no matter how numerous they may be (Guertin and Bailey, 1970, p.1).

It is useful to distinguish between two different uses of factor analysis. The first is descriptive and simply seeks to reduce a large set of variables or questionnaire items to a more manageable set of linear combinations. The second use involves making inferences about the underlying organizing influences hypothesized to be responsible for observed correlations among variables. The present evaluation exclusively employed this second use of factor analysis.

Fundamentally, a factor is a mathematical function of the correlations (which are measures of association between variables) with which one begins. Factor analysis locates patterns of relationships and groups variables together in such a way that correlations among variables within a group (i.e., factor) are maximized. Ideally, factor analysis identifies groups of variable which are highly homogenous and these variables are subsequently combined into a single scale score. The scale score represents the amount of "something", that each respondent possesses. We typically assign a label to the "something" and the label is chosen so as to best reflect what the variables comprising the scale appear to have in common.

Hypotheses about the nature of organizing influences are called "constructs", denoting that they are human inventions. Pattern and regularity in human behavior are discovered; construct are invented to account for the observed pattern. Factor analysis is simply a pattern or structure searching tool which also can be used to confirm the invariance or pervasiveness of a discovered pattern or structure.

In the present evaluation we employed factor analysis to generate learner outcome constructs from the hundreds of cognitive and affective items to which the students responded. Similarly, a forty item attitude questionnaire administered to teachers, counselors, and principals was factor analyzed in an effort to understand the major dimensions along which individuals were responding. We also endeavored to check the structural stability (invariance) of these solutions by separately factoring both random subsamples and systematically selected subsamples of respondents. These structural invariance studies ensured that different respondent groups (e.g., males and females) were interpreting the items similarly. For example, if fifth grade students were unable to read or understand a particular set of items, whereas eighth graders could comprehend the items, then the factor structures for the two groups would be different, and we could not infer that the same organizing influence (e.g., career awareness) was being measured at the two grade levels. If the same construct is not being measured in two groups of respondents, it is meaningless to compare scores across these groups.

Volume III of this final report sets out both the logic of construct definition and computational procedures for all factor analyses employed in this evaluation. For an excellent intermediate level discussion of factor analysis the reader is referred to Gorsuch (1974).

Regression/Commonality Analysis

> Multiple regression/correlation analysis (MRC) is a highly general and therefore very flexible data-analytic system that may be used whenever a quantitative variable (the dependent variable) is to be studied as a function of, or in relationship to, any factors of interest (expressed as independent variables)..... The nature of the research factors expressed as independent variables is also not constrained; they may be quantitative or qualitative, main effects or interactions in the analysis of variance (AV) sense, or covariates as in the analysis of covariance (ACV). They may be characterized by missing data. They may be correlated with each other, or uncorrelated (as in balanced factorial design AV). They may be naturally occurring ("organismic") properties like sex or diagnosis or IQ, or they may be consequences of planned experimental manipulation ("treatments"). (Cohen and Cohen, 1975, p.3).

The regression/commonality analysis procedure used in this evaluation has other properties that make it a powerful, versatile analytic tool for data analysis problems in which the criterion is univariate. Two of these properties are as follows:

1. The procedure permits analysis of independent variables (e.g., staff characteristics, exposure variables, teacher knowledge and understanding) as sets, thus, greatly reducing the complexity of presentation when large numbers of independent variables are under study. The basic concept of proportion of explained variance (r^2) can be easily generalized from a single independent variable to a set of independent variables. For example, in this evaluation, we have organized the twenty-seven eighth grade CE activities into three sets: classroom activities, linkage activities, and extra school activities. Relationships between exposure to various activities and learner outcomes can be summarized by reporting simple and partial R^2s for each set.
2. The procedure yields measures of the unique and joint contributions that a variable or set makes to explaining a criterion. This property permits full explication of the ways in which independent variables combine to predict a criterion and partially resolves the troublesome problems attendant to multicollinarity.

The regression/commonality analysis procedure partitions the variance in a criterion (e.g., career awareness or reading achievement) that is predictable from two or more sets of predictor variables (e.g., staff characteristics, frequency of exposure to career education activities, student background characteristics) into the proportion that can be uniquely associated with each predictor set, and the proportion that is in common with two or more other predictor sets. Regression/commonality analysis represents the confounded or joint portions of effects on outcomes as separate partitions of the outcome variance (called "commonalities"). These confounded portions are not included in the estimation of the irreducible effects of the separate predictor sets (called "uniquenesses").

For the sake of illustration, suppose we are interested in identifying concomitants of posttest career knowledge among eleventh graders, and we have two sets of independent variables: pretest scores on career knowledge (Set A) and exposure to career education activities (Set B). The pretest set includes one variable and the activities set contains twenty-seven variables (we are purposefully limiting this example to two sets of independent variables, although in actual analyses the student activity variables are often divided into the three sets described previously). Suppose now that we run a regression analysis and obtain a squared multiple correlation for career knowledge against the two predictor sets, alone and in combination. For two sets of independent variables we will generate three squared multiple correlations (a numerical example parallels the more general presentation):

$R^2(A)$ = Squared correlation of pretest score with posttest score on the career knowledge criterion ($R^2(A) = .50$)

$R^2(B)$ = Squared multiple correlation of exposure to career education activities with career knowledge ($R^2(B) = .30$)

$R^2(A,B)$ = Squared multiple correlation of pretest and exposure to career education activities with career knowledge ($R^2(A,B) = .60$)

The portion of the total squared multiple correlation that can be uniquely associated with the A and B sets of independent variables is given by:

$$U(A) = R^2(A,B) - R^2(B) \quad (.30 = .60 - .30)$$

$$U(B) = R^2(A,B) - R^2(A) \quad (.10 = .60 - .50)$$

These unique values are sometimes called first order commonality coefficients or more simply "uniquenesses". The portion of total predictable variance that is in common, or jointly held, between the two predictor sets is given by:

$$C(A,B) = R^2(A,B) - U(A) - U(B) \quad (.20 = .60 - .30 -.10)$$

This partitioning results in the following additive propertie

$$R^2(A) = C(A,B) + U(A) \quad (.50 = .20 + .30)$$

$$R^2(B) = C(A,B) + U(B) \quad (.30 = .20 + .10)$$

That is, the multiple squared correlation of a predictor set can always be partitioned into that portion which makes a unique contribution to explaining criterion variance and that portion which is confounded with other predictor sets. When more than two sets of predictor variables are used, the confounded or joint contribution can be further divided into portions held by various combinations of predictor sets. In general we will refrain from partitioning the joint contributions, both to conserve parsimony and because these higher order commonalities prove to be rather unstable.

From our parallel numerical example, we can observe a substantial advantage of this regression/commonality procedure. If a cookbook stepwise regression approach would have been conducted on these data, we would conclude that pretest is about five times as important, based on beta weighting, in explaining career knowledge posttest performance than is exposure to career education activities. Using the regression/commonality procedure, however, makes explicit the fact that pretest and exposure are highly correlated; in fact, twenty percent of the posttest variance is confounded between the two independent variable sets. Thus it appears, in our example, that students with lower initial scores on career knowledge receive different amounts and types of exposure to career education activities than students with higher initial scores. Such a finding might have policy implications far different from a finding that pretest was decidedly more important in explaining posttest performance than was exposure to career education activities.

Canonical Redundancy Analysis

Canonical correlation is the extension of multiple regression analysis when the criterion is multivariate, or, more precisely, multiple regression analysis is a special case of the more general canonical model. Canonical analysis proceeds by finding two sets of weights, one set for the X variables (e.g., teacher reported level of implementation) and another for the Y variables (student reported level of exposure) such that, when the two canonical variates (X,Y) are computed, they are maximally correlated. The respective canonical variates are interpreted much as factors in a factor analysis; variables with high zero order correlations (structure coefficients) with the respective canonical variates are accorded greatest significance in interpreting the variates.

A canonical correlation coefficient, in and of itself, is a rather useless and often misleading indication of the relationship between two sets of variables. Because a canonical variate accounts for only a portion of the total variance in its respective set of variables and because this portion is not necessarily equal in the two sets, interpretation of the canonical correlation coefficient requires knowledge of how much variance the two canonical variates extract from their respective sets.

Another complication with canonical correlation analysis, as traditionally employed, is that canonical correlation coefficients appear to be particularly sensitive to chance fluctuations. Particularly with small sample sizes, it is not unusual to obtain highly inflated canonical correlations. One hunch put forth by Cooley and Lohnes (1976) is that these artificially inflated canonical correlations often involve canonical variates which account for trivial amounts of variance in their respective sets. Our experience is consistent with this hunch.

A recent development called canonical redundancy analysis (CRA) provides a much more meaningful representation of the relationship between two sets of variables while protecting against the artificial inflation phenomenon. Recall that each canonical variate accounts for some proportion of variance among its constituent variables just as a factor in factor analysis accounts for some portion of the total variance. The redundancy of one set of variables with another (e.g., teacher reported implementation with student reported exposure) is represented by multiplying the squared canonical correlation by the percent of variance accounted for by the two respective canonical variates.

Note that the obtained values will likely be different for the two sets, indicating that canonical redundancy coefficients are not necessarily symmetrical.

For example, assume that the first canonical variate extracted from the variable set "teacher reported implementation" accounts for 40% of the total variance in that set, and the first canonical variate from the set "student reported exposure" accounts for 50% of the total variance in that set; further, suppose that the squared canonical correlation (R^2c) between these respective variates is .60. The redundancy of "student reported exposure" with "teacher reported implementation" would be R^2d = .24, whereas the redundancy of "teacher reported implementation" with "student reported exposure" would be R^2d = .30. Thus twenty-four percent of the total variance in the variable "teacher reported implementation" is redundant with the first canonical variate in the variable set "student reported exposure." Similarly, thirty percent of the total variance in the variable set "student reported exposure" is redundant with the first canonical variate in the variable set "teacher reported implementation." Note that there is no assumption regarding causality. We use canonical redundancy coefficients to describe relationships parsimoniously among sets of variables and, we refrain, for the most part, from drawing causal inferences from these analyses.

Tests of Statistical Significance

Recalling our earlier discussion regarding statistical significance, we feel that since the units in this evaluation were not randomly assigned to treatment and control conditions, the relevance of inferential statistics, classically interpreted, is questionable. We adopt Smith's (1973) position and suggest that the significance tests be used as heuristic devices. Thus, we should be concerned about degrees of freedom only in those cases where what would otherwise be an educationally meaningful difference (or squared correlation) is statistically insignificant. Fortunately, the sample sizes in this evaluation are sufficient to protect against a frequent occurrence of this phenomenon.

Limitations On Results

The reader should note that the quality and generalizability of the findings presented in this report are limited by the nature of the evaluation design utilized. This is not to say that these results are invalid; rather, they are valid only within the limitations described below. Limits on generalizability are imposed by four factors: (1) the methodology adopted, (2) the instruments utilized, (3) the sampling plan and response pattern, and (4) externalities.

Methodology

The CIPP model developed by Stufflebeam, et al., (1971) and adapted for this study, generates a broadly focused evaluation. Given a fixed level of effort, collecting data within all of the variable sets requires that any one variable set cannot be studied as extensively as might be desired. The chief cost evident from this approach is the relative lack of formative evaluation data; NTS did not continuously "monitor" projects' attempts to reach their objectives, except in a few cases where this was explicitly a part of the project's unique evaluation design. Another consideration was the variety of instrumentation necessary to collect information in all the variable sets; some local project staff and practitioners perceived the burden to be onerous and, consequently, were not able to cooperate as fully as possible. One result of the reduced participation summarized earlier in this chapter was selective sample attrition from pre- to posttesting.

Another result of this broad focus was that only five projects actually administered full batteries to fifth, eighth, and eleventh grade students. Thus, though the samples are large even when considered by instrument, the spread across projects is not uniform. This lack of uniformity was reflected in Table 2.22 Again it should be remembered that this study was not intended to be a national evaluation; had it been so intended, such nonuniformity would be potentially disasterous. Even for the present effort, of course, conclusions must be viewed with this limitation in mind.

It is interesting to speculate whether the reactions by the projects would have been similar had the evaluation involved a more intensive concentration in only one set. The limitation from sample attrition is clear; the power of probabilistic statements declines with sample size. Nonetheless, we feel that the design used in this study was the most appropriate for answering the policy evaluation questions posed by OCE and the projects, while at the same time fulfilling the technical assistance requirements of the contract.

Instrumentation

Beyond the lack of suitable validated instruments for the three variable sets investigated (discussed earlier in this chapter) three limitations were imposed by NTS's instrument choices. Two of these limitations apply to the outcome battery and one applies to the process instruments.

Two problems were associated with outcome battery administration; (1) fifth graders at some projects were reportedly frustrated by inappropriately high reading levels, and (2) the battery itself appeared so burdensome that some projects could not sell their respective school principals on the benefits of full administration. Inappropriately high reading levels were a major concern during the outcome instrumentation selection process. Prior to final selection all instruments were tested for their readability, using the Spache readability formula. Although a few items were fairly difficult, overall, the selected instruments matched expected grade level reading ability. Further, NTS specifically requested test proctors to read the questionnaires aloud to fifth grade students. Little could be done about the problem of battery burden. The lack of a single instrument which parsimoniously covered the outcomes of interest required using multiple instruments.

The process instrumentation results were marred by NTS's inability to devise a practical and locally satisfactory method by which individual students could be linked to their individual teachers to improve the measurement of exposure to career education activities. One major reason for this was methodological: asking students to list all teachers, trace the career education activity participation of each of the teachers, and then allocate their relative impact on each student would have been a data collection, programming, and analytical nightmare. Another major reason was more pragmatic; linking students with individual teachers was seen by practitioners and project staff in some sites as highly threatening. It was possible, however, to link most fifth grade students with their teachers in all but a few sites.

Sampling

Although there was considerable sample attrition, a substantial number of students sharing similar characteristics were involved for both pre- and posttesting. More important limitations stem from the small sizes of some professional staff samples. NTS was constrained by what the projects would allow in sampling these groups and, further, had only minimal control of the administration of the professional staff instruments. Thus, the problems already inherent in the small, planned sample sizes were further compounded by nonresponses. The chief limitations imposed here are on the statistical techniques that could be used and the need to assume wide confidence intervals on results.

Another limitation stems from the fact that none of the respondent groups were selected using true random sampling procedures. Even though the characteristics of the respondent groups appear to be similar (except on the important ethnicity variable) to those of the relevant populations (see Chapter 4), some power in making generalizations is necessarily lost because of the selection procedure.

A third limitation was associated with the sampling design, though the limitation did not result directly from the design.

The nontarget samples suggested by some of projects were both substantially dissimilar across educationally significant background variables (e.g., ethnicity) and also were, in fact, highly "contaminated" by the the career education treatment. As noted earlier in this chapter, a true experimental design was ruled out as being inapplicable; rather, a comparison group model, with much less stringent assumptions about assignment to treatment groups, was judged to be more suitable. Nonetheless, the differences in background characteristics between the target and nontarget groups, described in Chapter 4, and the similarities in treatment, presented in Chapter 5, severely strained even those less stringent assumptions. Little can be done, after the fact, to adjust for these problems beyond utilizing the comparison group model only in those projects where the problems are minimal. In future evaluations of this type, however, the investigator should double-check the accuracy of practitioner claims.

Externalities

Three significant external factors caused problems in carrying out this evaluation as planned. These three, their effects on the evaluation, and some suggestions for avoiding similar problems are discussed below.

There was some initial resistance to NTS evaluation efforts. Although NTS worked with each site to develop unique evaluation designs, NTS's project resources did not allow carrying out the detailed formative and summative evaluations some of the projects had planned. Throughout the course of the evaluation, confusion existed within a few projects as to what NTS could and could not do. Although this problem did not lead to direct changes in the design, it may have led indirectly to decisions to cut back post-test samples and to some delays in returning data. Avoiding such problems is difficult when, as in this study, projects agreed to participate prior to development of the full design and, further, when few resources could be expended by the sites for their own evaluation efforts. Finally, as mentioned previously, resources available to NTS for this study were not sufficient to provide lengthy and detailed on-site evaluation assistance.

A related factor was the need to enlist the cooperation of the projects throughout the course of the evaluation. Although all projects agreed to participate in general, many project staff perceived the demands placed on them and others in their districts to be excessive. The main limitation this problem imposed was on the scope of testing. Although a number of reasons were involved in decisions to use particular instruments or to maintain sample sizes, perceived burden coupled with no requirement to participate in all testing resulted in reduced cooperation from a few sites. Avoiding this problem in the future would require either increased resources to allow greater on-site involvement stiffer participation requirements, or both. More directly, the development of much shorter instruments, still covering the range of outcomes, would ease such evaluation problems considerably.

The third problem involved process and posttest administration activities and led some projects to decrease the size of the samples and other projects to reduce the number of instruments in the outcome battery. NTS was not able to provide the projects with process forms in time for scheduled March 1977 administration. Delays were caused primarily by difficulties encountered in developing the process battery. These delays were exacerbated by a flurry of shipping problems. Although most local project staff understood the delays, many of the principals whose students who were pretested also took the posttest, some of the sample attrition that took place was due to this problem. Further, process administration delays led to posttesting delays. In a few cases, testing was not completed until near the end of the school year; this led to further delays in getting data returned to NTS. Avoiding this problem requires that both the funding agency and the contractor agree on a firm date for submission of OMB forms clearance packages and on contingencies for the likelihood that instrument development and clearance routinely take more time than even the most pessimistic projections.

3

THE CONTEXT OF CAREER EDUCATION

The context in which an educational innovation is implemented is an important ingredient in determining the impact of that program. In this evaluation of career education, NTS utilized a sample of fifteen career education projects, each of which was embedded in its own unique context. Thus, each project was affected to some degree by different factors extrinsic to it. This situation presents a problem for generalization only to the extent to which the NTS sample varies from a truly representative sample of federally supported career education projects. For example, it would certainly be inappropriate to generalize the results from this study to all OCE-funded K-12 incremental improvement projects if the results were based on a disproportionate representation of predominantly white, upper-middle class, suburban LEA projects.

The ideal state of affairs for this study would have been to have chosen a random sample of projects from the population of federally supported career education programs. The assumption could then have been made that the NTS sample constituted a truly representative sample of the contexts in which federally supported career education is taking place. In addition, it could be assumed that the random selection of sites would "cancel out" or control differential program effects due to contextual factors.

The fifteen projects which participated in this evaluation were not randomly selected (see the section in Chapter 2 on sampling). It would be very difficult, if not impossible, to demonstrate empirically that this sample was representative of all such career education programs with regard to all relevant contextual variables. Although the representativeness of this sample can not be demonstrated, it is possible to show that the full range of characteristics on several major contextual dimensions are represented by the fifteen projects.

The remainder of this chapter is divided into three sections. The first section will look at various characteristics of the communities in which these projects are located. The second section will describe features of the fifteen respective school districts, and the third section will provide a brief description of each career education project.

Community Characteristics

Table 3.1 presents data from the 1970 United States Census pertaining to the communities in which the fifteen career education projects are located. The information presented is in terms of those census units which most closely approximate the population served by the various school systems, i.e., urbanized area, city, or county. Jobland, for example, is described using combined data for both the city and county as the school system encompasses both. Awaresville, although concentrating its project in a portion of a dist

TABLE 3.1

POPULATION CHARACTERISTICS OF FIFTEEN CAREER EDUCATION SITES

	U.S.	Sample Weighted Average	Jobland	Workville	Treksville	Self Awareville	Vocation Beach	Unique Domain	Mount Exploration	Prepton	Study-town	Cognitive Camp	Better Springs	Middlesex	Career City	Opportunity Unlimited	Falstaff
Total population in 1970	203,212,877		26,728	173,354	275,420	344,311	8,778	622,236	36,253	92,116	93,284	22,327	34,518	20,171	38,502	33,168	55,311
% change from 1960	13.3%	2.2%	–13.9%	36.7%	–5.1%	30.6%	–8.0%	–17.0%	27.0%	–5.1%	*26.1%	66.3%	43.8%	8.0%	36.6%	–.14.8%	18.0%
% minority	12.5%	21.1%	16.7%	2.8%	17.8%	14.4%	55.9%	41.3%	10.4%	10.5%	15.5%	22.3%	1.0%	2.5%	0.4%	1.5%	0.5%
% under age 18	34.3%	32.2%	35.1%	29.6%	32.6%	34.6%	30.6%	31.8%	27.6%	29.8%	29.9%	40.6%	39.6%	23.7%	34.2%	35.5%	28.3%
% living in the same county in 1965	75.2%	NA	86.8%	64.0%	84.0%	64.7%	85.5%	81.2%	65.5%	78.6%	53.4%	60.2%	78.5%	67.3%	78.9%	71.8%	73.6%
Total number of families	51,168,599		6,991	37,626	70,464	88,158	2,004	149,755	8,354	24,722	22,844	5,641	8,496	4,968	10,524	7,862	12,811
% with children under age 18	55.3%	61.8%	52.7%	57.3%	61.8%	66.7%	61.5%	47.1%	53.3%	47.2%	54.6%	63.3%	65.4%	43.8%	55.0%	54.5%	61.1%
% under 18 living w/both parents	82.7%	75.5%	84.6%	86.4%	79.2%	79.7%	64.4%	64.2%	79.3%	75.1%	75.9%	80.4%	93.7%	84.2%	90.6%	77.1%	88.6%
Mean size of family	3.6	NA	NA	3.0	3.5	NA	NA	4.3	3.5	3.3	3.3	NA	NA	NA	NA	NA	2.8
Median income	$9,590	NA	$7,682	$11,385	$10,051	$8,880	$5,519	$8,182	$7,703	$8,216	$9,571	$8,028	$13,933	$7,054	$17,971	$8,014	$9,746
Mean income	$10,999	$10,509	$7,944	$12,779	$11,152	$10,374	$6,649	$9,268	$9,234	$9,429	$10,725	$8,768	$15,188	$8,259	$21,206	$9,108	$10,860
% home owners	59.2%	NA	NA	46.7%	62.9%	NA	NA	33.0%	38.4%	58.5%	46.3%	NA	NA	NA	58.4%	NA	62.5%
Mean value of unit	$19,674	NA	NA	$24,409	$17,377	NA	NA	$14,172	$12,692	$15,147	$29,528	NA	NA	NA	$31,924	NA	$16,911
% w/income under poverty level	10.7%	11.1%	14.6%	5.3%	8.8%	11.2%	34.8%	14.3%	17.4%	10.9%	9.0%	15.7%	1.7%	15.0%	2.4%	11.6%	5.0%
% w/children under 18	63.7%	NA	55.9%	62.3%	68.9%	68.6%	71.4%	70.0%	57.6%	61.9%	70.7%	71.5%	73.6%	50.2%	66.0%	72.0%	45.2%
Total number of employed persons	76,553,599		10,408	76,417	104,825	126,731	3,008	231,765	13,987	38,745	27,905	7,178	14,858	7,552	15,086	12,135	22,295
% in white collar occupations	48.2%	49.7%	27.2%	64.1%	45.4%	53.3%	34.2%	42.1%	51.3%	46.9%	55.0%	39.4%	66.8%	52.8%	88.7%	56.2%	47.5%
% in blue collar occupations	35.9%	33.0%	55.5%	19.3%	40.2%	30.1%	29.4%	37.7%	32.3%	36.8%	23.0%	44.0%	24.2%	29.2%	7.4%	26.4%	36.1%
% in farm occupations	3.1%	1.1%	7.3%	0.2%	0.1%	3.4%	21.4%	0.3%	1.2%	0.2%	1.0%	2.0%	0.2%	1.3%	0.1%	1.0%	0.3%
% in service occupations	12.8%	16.2%	10.0%	16.4%	14.2%	13.2%	15.0%	19.9%	15.2%	16.1%	21.0%	14.6%	8.7%	16.7%	3.9%	16.6%	16.1%
Leading industry of emp. persons	Manufacturing		Manufacturing	Schools	Manufacturing	Manufacturing	Agriculture	Manufacturing	Manufacturing	Manufacturing	Schools	Manufacturing	Manufacturing	Schools	Manufacturing	Manufacturing	Manufacturing

*Growth in population from 1960 was not available; therefore, growth for the county was substituted.

NA indicates that the data were unavailable.

has no census units appropriate to the specific locale; thus, county data were used. In addition, the reader should note that the figures under the column heading, "Sample Weighted Average," do take into account the relative size of each of the communities.

Inspecting Table 3.1, the reader will observe that for all variables there is substantial variance in values around the value for the nation as a whole. It would appear that there is no readily apparent bias built into the composite (or common evaluation) sample by disproportionately representing any of the variables reported. The sample weighted averages, however, indicate that the population of the sample communities has grown at a somewhat slower rate and includes a larger proportion of minorities than is true for the nation as a whole. These weighted averages also suggest that the general composition of the family in the common sample is somewhat different than for the nation, in that a smaller proportion of families in the sample have children under eighteen living in the home. In addition, the percentage of children eighteen years and younger living with both parents is less than the percentage for the nation. Family income and proportion of families below the national poverty level are fairly close to the figures reported for the country as a whole. With regard to statistics pertaining to employment, the distribution of workers in the reported occupational areas does not vary to any marked degree from the national figures.

Although not immediately evident from Table 3.1, there are several sites which are predominantly rural in character. These sites would be Vocation Beach, Jobland, Middlesex, and Cognitive Camp. At the other end of the spectrum, the composite sample includes a number of major urban areas, Workville, Unique Domain, Awaresville, and Treksville. The remaining sites are moderate-sized communities or suburban areas bordering larger urban areas.

School District Characteristics

Table 3.2 provides some basic information pertaining to the school districts in which the common evaluation's fifteen career education projects operate. The reader will observe that there are a number of missing values in this table. Despite repeated attempts to secure this information, some districts were unable to respond.

The school districts included in the common evaluation sample vary considerably with regard to size of enrollment, educational level of faculty, and per pupil expenditures. We are of the opinion that, in spite of the fact that the fifteen project locations were not randomly selected, the resultant sample did provide a broad based representation of many important school district characteristics. Further, these are LEA level data; some projects included only a portion of their districts. Data specific to the projects are reported in the summaries beginning on page 3.7. (Since LEA level data were not available for Awaresville, project level data were substituted.)

Numbers of schools and faculty roughly parallel LEA population and enrollment. Only two of the fifteen districts use other than a three level educational system; both Jobland and Unique Domain divide grades between two levels. More variability can be seen within other of the categories of Table 3.2. The percentage of teachers who have served less than two years ranges from one

TABLE 3.2

CHARACTERISTICS OF FIFTEEN CAREER EDUCATION SCHOOL DISTRICTS

	Jobland	Workville	Trukaville	Awaresville*	Vocation Beach	Unique Domain	Mount Exploration	Prepton	Studytown	Cognitive Camp	Better Springs	Middlesex	Career City	Opportunity City	Fallstaff
Number of schools															
Elementary	(K-7) 13	33	47	NA	1	(K-8) 150	6	21	20	9	9	6	7	8	17
Middle	NA	10	10	NA	1	NA	1	6	5	2	3	2	2	3	4
Senior	(8-12) 4	4	9	NA	1	(9-12) 15	1	2	4	2	2	1	1	1	2
Number of faculty															
Teachers	462	1,833	2,121	114	155	3,900	270	888	767	354	662	235	383	380	565
Counselors	1	61	104	6	6	90	8	23	33	6	16	6	12	11	11
Building Administrators	16	140	74	5	9	NA	8	27	41	18	11	9	10	12	25
District Administrators	26	66	NA	NA	7	NA	NA	36	12	19	28	8	15	13	26
Faculty tenure															
Less than 2 years	14%		NA	NA	16%	NA	NA	1%	NA	20%	10%	8%	NA	NA	15%
2-5 years	35%	$\bar{X}$-8.7 yrs.	NA	NA	28%	NA	NA	1%	NA	30%	14%	15%	NA	NA	19%
6-10 years	22%		NA	NA	19%	NA	NA	43%	NA	30%	20%	57%	NA	NA	22%
More than 10 years	29%		NA	NA	37%	NA	NA	45%	NA	20%	56%	20%	NA	NA	44%
Faculty education															
Bachelor's degree	78%	57%	63%	NA	59%	NA	33%	68%	NA	81%	55%	16%	NA	46%	50%
Master's degree	22%	42%	36%	NA	40%	NA	67%	32%	NA	10%	35%	80%	NA	50%	49%
Specialist degree		0	0	NA	1%	NA			NA	1%	6%	4%	NA	4%	0
Doctorate degree		1%	1%	NA	0	NA			NA	0	4%	0	NA	0	1%
Unionization of faculty	No	Yes	Yes	Yes	Yes	NA	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Enrollment															
Total	8,317	29,409	48,415	3,043	2,376	86,000	4,700	16,597	15,844	7,488	11,098	3,104	7,275	5,988	9,599
Male	NA	14,987	NA	NA	NA	NA	NA	NA	NA	3,878	5,604	1,608	NA	NA	4,831
Female	NA	14,422	NA	NA	NA	NA	NA	NA	NA	3,610	5,494	1,496	NA	NA	4,768
Percent minority	19.0%	6.2%	32.0%	NA	60.0%	70.0%	15.0%	31.5%	NA	18.0%	.02%	2.0%	0.2%	.02%	1.3%
Number of Title I students	521	1,157	11,000	NA	584	NA	NA	NA	NA	NA	165	387	0	490	352
Students on free lunch	1,775	2,601	9,273	NA	1,485	NA	NA	6,000	NA	NA	200	679	0	1,564	826
Budget															
Percent from local funds	51%	84%	60%	NA	NA	NA	NA	64%	NA	15%	43%	45%	NA	49%	57%
Percent from state funds	41%	14%	40%	NA	NA	NA	NA	26%	NA	80%	55%	39%	NA	49%	42%
Percent from federal funds	8%	2%	NA	NA	NA	NA	NA	10%	NA	5%	2%	• 2%	NA	2%	1%
Per pupil expenditures	$990	$1,800	$1,313	NA	NA	NA	NA	$1,384	NA	$729	$1,162	$1,050	NA	NA	$1,318

NA indicates that the data were unavailable.

*LEA level data were not available; these are project level data.

percent to twenty percent. Among teachers who have served more than ten years, the range is from twenty to fifty-six percent.

The educational background of the districts' faculties also shows a wide range. In Cognitive Camp, for example, only nineteen percent of the teachers have earned degrees beyond the bachelors, while in Middlesex all but sixteen percent have advanced degrees or certificates. Although ten of the fourteen responding projects reported that their faculties were unionized, in most cases the degree of unionization was weak. Generally "unionization" means, in these LEAs, that there is a moderately active branch of the NEA.

The percentage of district funds provided by different sources also varies greatly. The range for local financial support is from fifteen percent in Cognitive Camp to eighty-four percent in Workville. State support percentages range from eighty to fourteen percent in those same two districts. Federal support varies between virtually none to ten percent, with no first order relationship to state and local percentages or to per pupil expenditures.

The types of students in these fifteen LEAs differ as well. Minority students make up seventy percent of Unique Domain's enrollment, but only a fraction of a percent in Better Springs, Career City, and Opportunity City. Title I students comprise only a little more than one percent in Better Springs, twenty-three percent in Treksville, and twenty-four in Vocation Beach. These percentages are paralleled by the numbers of free or reduced-price lunch students.

Project Summaries

The tables in the previous sections can only provide limited information about the project sites and programs. In order to give the reader a greater sense of each project's activities and objectives, we have included brief project summaries. The summaries themselves were abstracted from the context and program descriptions developed by NTS for each local evaluation report. Each summary is divided roughly into four sections: (1) background, (2) populations served, (3) objectives, and (4) program activities. A brief section comparing the projects' objectives and activities follows the summaries. Chapter 5 of this report contains additional information about implementation activities in the projects. To ease interpretability, the presentation order of these summaries parallels the order of the projects in the tables of this report.

JOBLAND

This largely rural school district is located within a mountain resort area in the historic upper south. Occupations in Jobland are centered around agriculture, forestry products, and tourism. Other employers are located in nearby cities. The total populations served by the project included:

Students	K-7 8-12	4,933 3,384
Staff	Teachers Other staff	452 43
Community	Parents Community	12,000 102

This project had two previous career education projects in the LEA as its forerunners. One of the major purposes of this project was to bring together the strands of these two previous projects into a comprehensive career education curriculum. The major objectives were aimed at serving the total school population and included:

1. Giving students the opportunity to increase self-awareness, develop favorable attitudes toward the personal, social, and economic significance of work, and increase their career awareness through project activities.
2. Providing students with increased opportunities for experiences in the business-labor-industry community.
3. Integrating the programmatic assumptions of career education into the instructional program by teachers, administrators, and ancillary personnel.

4. Encouraging parents, the business-industry-labor community, and other agencies, to assist in developing and implementing a comprehensive career education program.

5. Helping parents recognize their roles in the career development of their children.

6. Advancing the development of a placement model by guidance personnel.

The major activities that were implemented to achieve the objectives of the program included the following:

The school division program used materials and career education activities to develop and infuse the career education concepts into the children's program.

The previous work experience program was expanded to include an extended time of work experience.

In-service programs were developed to aid all personnel in understanding the programmatic assumptions of career education.

Use was made of parents and the business-industry-labor community to provide resource people and on-site experience for teachers and pupils to develop and implement the program.

Parent mini-courses were developed and expanded.

The placement model was adapted and placed in use by guidance personnel.

Career education in this school system has been defined as the totality of experience through which one learns about and prepares to engage in work as a part of a way of living. The classroom teacher is considered the key to the implementation and success of career education. The goal of this program is that all who teach and all who learn make education as preparation for work a major goal. In view of these two ideas, the important effort of career education in Jobland is to bring all resources of the community into education.

WORKVILLE

Workville, a midwestern urban center, is a state capital. The city is noted for its agricultural products, but also serves as an industrial and intellectual center for the state. An experience-based career education learning model had been established and implemented previously within the Workville high school curriculum. Workville agreed to join its state's K-12 Career Education Consortium in 1976. Participation in this consortium has had several effects, one of which has been the procurement of additional funds for the project; as a consortium member, Workville received $48,000 during its first year. In return, the project assumed the obligation to strive to meet certain consortium objectives. The project served the following populations:

Students	K-6	11,924
	7-9	9,017
	10-12	8,468
Staff	Teachers	1,833
	Other Staff	256

The major objectives for the 1976-77 school year centered around the following topics and were shared by all members of the consortium: dissemination, improvement, learner outcomes, evaluation, and leadership.

The program was expected to exert strong impact upon student scores on the nine OCE learner outcomes. Workville is serving as the site for a demonstration project on the relationship between the school and society. The project was also established as the center for data collection and assessment for the participating consortium members. Data collected from the ongoing career education program was to be used as the basis for long-range planning for staff needs in curriculum development. In general, the career education project has received strong administrative support.

Some of the activities used to achieve the objectives were:

> Movement from subject matter/discipline orientation to building practical relationships between education and work.
>
> Continuation of the focus of the 1976 project goals related to the experience-based learning options being utilized in the basic skill areas of language arts, math, science, and social studies.
>
> Development of a community resource directory and the related management system for its utilization.
>
> Implementation of a counselor-teacher team approach to experience-based learning.
>
> Implementation of a counselor-developed career guidance system in each high school, using a district career development plan as a basis.
>
> Identification of available data sources at the school, district, state, and national levels that potentially have implications for modifying the high school structure, process, or product.
>
> Involvement of staff, administrators, and the internal and external clients of education in the interpretation and use of the data; identification of findings related to career planning needs.
>
> Working with present students and recent graduates in validation of career planning needs and in planning for changes in the high school curriculum.

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TREKSVILLE

Treksville is a medium sized city in a heavily industrialized midwestern state. The main commercial activities center around the manufacture of durable goods for the transportation industry. As an important educational center in the state, Treksville has access to numerous postsecondary institutions within commuting distance. The vast metropolitan area makes possible a rich array of experiences for large numbers of students.

The career education program at Treksville is an exemplary model demonstrating an effective collaborative working relationship involving business, labor, industry, and education. The project began in 1970, funded locally and by the state. The population served by the project, a subset of the LEA, included:

Students	K-6	7,421
	7-9	3,311
	10-12	3,430
Staff	Teachers	11,320
	Other Staff	97
Community	Parents	28,000
	Business-Labor-Industry	4,000
	Government and Community Agencies	1,000

The major objectives of the program were:

1. To refine and identify an established exemplary career education model.
2. To demonstrate an effective collaborative relationship between the business-labor-industry and education community in implementing career education programs.

3. To develop and publish a manual for those who wish to replicate such a program.

The major strategy of the program was to develop strong bonds of support within all segments of the community and thereby increase opportunities for students.

The achievement of the goals was assisted by activities, which were designed to move a student along a career continuum. For grades K-6, the use of the community as a resource was extensive. For grades 7-8, the use of the community as a resource was continued, but with greater reliance on field trips and with more involvement of community groups as coordinators for the field experiences. For grades 9-12, the emphasis was on integrating school subjects with an exploration of careers.

Elementary students were to have spent at least 270 hours during the past year in activities which integrate career education into the on-going curriculum. Junior high students were to participate in an expanded guidance program, in addition to expanded field service opportunities. Senior high students began their career education experiences with an extensive exploration in their choice of three from the fifteen job clusters. A continually expanding array of on-the-job exploration experiences, as well as laboratory experiences within the school are used. As students continue their high school years, more guidance, hands-on experiences, and occupational work experiences are provided.

AWARESVILLE

This large metropolitan school system, located in a fast growing part of the tourist and recreation-oriented sun belt, is serving as a demonstration project for dissemination of career education throughout the state. The project is a continuation of federal and state supported efforts begun in 1971. Approximately forty school systems have incorporated at least a portion of the demonstration program into their individual school systems. Respective populations served by the project included:

Students	Grade 10 Grade 11 Grade 12	1208 1027 808
Staff	Teachers Counselors Administrators	114 6 5
Community	Parents Business/Industry	60 300

The primary goal of the project was:

To demonstrate and replicate the most effective methods and techniques in career education in the senior high school. Project efforts were focused upon the following two broad objectives:

1. To demonstrate components of a comprehensive model for career education at the high school level by:
    a. Maintaining demonstration centers previously established.
    b. Planning and conducting a national invitational conference.
2. To provide visitation and replication opportunities to interested schools in the consortium districts and interested districts in the remainder of the state and nation.

The major strategy was to maintain a demonstration center in a large high school in order to impact on the total program of the county. The major thrust of the center was to work with teachers to increase their knowledge of career education and to assist them in applying that knowledge. Further, large numbers of students participated in work experiences with cooperating employers.

The large commitment to dissemination has resulted in a detailed program and extensive materials for visitors. Materials are also available for visiting school systems to use in their own efforts to implement career education in their local environments. Some of the past year's activities included:

> Those high schools established as demonstration centers in each of the three counties in 1975-76 continued to function in that capacity. Components of the career education model currently operable in those schools continued to be demonstrated.
>
> All demonstration centers continued to add needed components of the career education model, which are operable in other schools within their respective districts, as well as those which are operable in other districts in the consortium.
>
> Comprehensive inservice efforts directed toward the purposes and replication efforts of the consortium were continued at each demonstration site. Curriculum materials developed by the three counties continued to be made available to all demonstration centers and other sites participating in replication activities.
>
> On-site technical assistance, related to replication of the individual components of the model, was made available to interested schools or districts in the remainder of the state and nation. The approach to demonstration and replication was one of taking the program strengths which existed in one senior high school and infusing what exists in other school sites throughout the participating consortium districts, the state, and the nation.

VOCATION BEACH

Located in a rural, southern county in the lower Sun Belt, the career education staff of the Vocation Beach school system has been confronted with some unique difficulties. Because the economy is based primarily on farming, there are few opportunities either for career awareness learning experiences outside of the classroom or for the placement of students in wide varieties of careers. The two principal industries of the county are a small manufacturing company and a race track. Another major difficulty identified by the staff has been that, although the student population of the schools is predominantly Black, the administrative positions within the school system and in the community are held by whites. The project was initiated in 1975-76, with OCE funds.

The populations served by the project during the 1976-77 school year included:

Students	K-5 6-8 9-12	1,035 583 758
Staff	Teachers Counselors Administrators	155 6 15
Community	Parents	300

The major objectives of the program for 1976-77 were:

1. To increase parent, teacher, county level school administrator and business/labor support of, and involvement in, career education.
2. To increase career and self-awareness among students in grades K-12, including EMR and SLD students.

3. To disseminate information about the project during the course and at the end of the project year.

4. To produce the following learner outcomes:

   a. increased competence in basic communication skills for low achieving 9th graders.

   b. improved work habits, work-seeking, and work-getting skills, as well as increased career decision-making skills for 9-12 students.

   c. decreased sex and race stereotyping of occupations for K-12 students.

The major efforts of the career education program in Vocation Beach were the inservice training program, counseling component, and dissemination component. Further, during the past year, the project staff was particularly involved in extending the implementation of the career education program to the school system's exceptional students. The staff was also interested in evaluating the relationships between career education activities and gains in communication skills.

UNIQUE DOMAIN

Unique Domain is located astride a major artery of commerce, and it serves as a major industrial center for the midwestern part of the country. The career education project in Unique Domain functions in an urban, low SES, inner city environment. The project has not been implemented system-wide. Fifteen schools (K-12) have been targeted, in hopes of taking advantage of the multiplier effect, to impact on the rest of the system's schools. Planning for career education began in 1972; state funding was provided in 1973. The project served the following school population, either directly or indirectly:

Students	K-8	65,000
	9-12	21,000
Staff	Teachers	3,900
	Counselors	90

The population figures represent the totals for the grades which the project hoped to reach by taking advantage of the multiplier effect.

The objectives of the project were:

1. To provide 126 elementary resource teachers/building coordinators with the skills necessary to implement career education philosophy, concepts, and guides, utilizing the multiplier method.
2. To provide all high school department heads in the subject areas of communication skills, social studies, mathematics, and science with the skills necessary to implement career education philosophy, concepts, and guides utilizing the multiplier method.

3. To disseminate a Community Learning Resource Guide for teachers to use for in-house resources and field experiences for students, and for making requests from an established speakers' bureau for in-school activities.

4. To expand the community involvement in the career education project through utilization of the Community Advisory Council so as to: assure a continuing link between business, community groups, and the project; assure a better understanding of the free enterprise system; and utilize all community resources in the publication of the Curriculum Resource Guide throughout the public schools.

For the purpose of influencing student outcomes, the main thrust of the program was in the area of teacher inservice and staff development. A comprehensive program of teacher inservice has been implemented and is intended to serve the teachers of the fifteen, primary target schools.

Activities undertaken during the past year included the following parallel to the objectives listed above:

> The staff selected fifteen target schools and inserviced teachers with skills necessary to infuse a comprehensive program of career information, exploration, decision-making, and counseling into their instructional program.
>
> The staff provided teachers of ten high schools with skills necessary to infuse a comprehensive program of career information, exploration, decision-making, and counseling into their instructional program.
>
> Project staff developed a Community Learning Resource Guide.
>
> Project staff endeavored to work through the community to build support for the program and to develop the Community Learning Resource Guide.

MT. EXPLORATION

Mt. Exploration is a medium-sized, border-state city noted for its agricultural by-products and served by a major state university. Mt. Exploration has some large industry. However there is a vast, rolling countryside, and ample opportunities exist for recreation.

The Mt. Exploration career education project, funded from a variety of local, state, and federal sources, has been in operation since 1974. The program served the following staff and student populations in a small urban setting:

Students	K-6 7-9 10-12	2,500 1,000 1,200
Staff	Teachers Other Staff	270 16

The main strategy of the program was to concentrate on increased in-service training for teachers, administrators, and guidance personnel. Another strategy being employed was review and reworking of curricula to conform to changes within the school system and community.

The objectives of the program were:

1. To increase emphasis by every classroom teacher in every grade level through systematic articulation of the career implications of the substantive content taught.

2. To develop and weave into the fabric of the total career education program an articulated K through 12 counselor-teacher guidance program.

3. To establish a formalized career education relationship between each school and its attendance area, and between the total school system and the total community.

4. To develop an evaluation plan and an on-going school-leaver and graduate follow-up plan.

The thrust of the Mt. Exploration program was to ensure the direct participation of the lay and professional community in the direction and progress of the program. The Mt. Exploration project enjoyed strong teacher, administrative, and community support. The small outlay for project personnel allowed resources to be allocated for teacher and student materials.

Some of the activities that were conducted by the project included the following:

> An implementation plan for the scope and sequence matrix was developed at each grade level and within each school. The areas of relative concentration on each element were determined by each school's staff, based on the student characteristics in each attendance area.
>
> The Junior High School Exploratory program offerings were reviewed to insure that each student explore all fifteen occupational clusters as defined by USOE. A minimum of ten self-contained exploratory cluster classes was offered, and five exploratory clusters were integrated into the academic classroom.
>
> At all grade levels, counselors and teachers working in concert designed, developed, and implemented a systematized articulated guidance plan of mutual involvement, which served the career development needs of each student.
>
> At predetermined intervals during the 9th, 10th, 11th, and 12th grades, each student's program of studies was reviewed. Each student was, through success-oriented counseling, to be able to relate his/her program of studies to his/her own career aspirations.
>
> A counselor-teacher designed work-study program for 11th and 12th year students was developed within the existing phase-elective course offerings. A minimum of 20 students participated during the first year of operation.
>
> A plan for the creation of a Community Career Education Council was developed and implemented by representatives from each school and the Office of School Administration. Records of this council's deliberations and activities have been maintained by the Project Director and the Career Guidance Coordinator.

PREPTON

Prepton is a city with a population of approximately 92,500 in the historic upper South. Manufacturing ranks first in Prepton's economy with production geared to railroad cars, plastic containers, textiles, electronic components, fire engines, and cosmetics. Approximately 74% of the population are white, 24% are black, and 2% are from other ethnic groups. During this year major efforts were made to develop video tapes for LEA wide in-service and career centers in the targeted high schools. The populations specifically targeted by the project included:

Students	K-6 7-9 10-12	1,200 800 600
Staff	Teachers Other Staff	150 14

The major goals of the program were:

1. To develop teacher-counselor-administrator competencies in the area of career education.
2. To provide the students who leave the system with the necessary skills to make logical and intelligent career decisions.

Prepton has 21 elementary schools, six junior high schools, and two senior high schools; this project, however, was targeted on five elementary schools, two junior high schools, and one senior high school. The system is committed to the infusion of career education into all schools, but the prime goal of the project during the past year was to develop teacher-counselor-administrator competencies in the area of career education through an intensive, comprehensive inservice education program.

A four-stage plan for the implementation of career education in Prepton was developed several years ago, the second stage of which was completed in 1975-76. The project accelerated the progress of Stage III and enabled Prepton to attain this stage within the past year. The project began planning in 1973 and first received OCE funds in 1975.

In meeting the objectives of Phase III, designed to facilitate implementation of career education, Prepton was to conduct the following activities:

> At least fifty percent of all teachers were to have had inservice dealing with career education.
>
> At least fifty percent of all students were to participate in a field trip or related career education activity.
>
> At least fifty percent of all parents were to have participated in a career education related activity.
>
> At least fifty percent of all teachers were to have taught at least two career education activities.

STUDYTOWN

The Studytown career education program is being conducted in a small west coast city, which caters to the tourist trade. The nature of the project, its location in a relatively high SES community, and its participation in a career education consortium allow viewing the Studytown project as both an exemplary and exportable model, which is being considered for adoption by the other LEAs in the state. The project has been funded from varying sources since 1972 and enjoys a good deal of state and local district support.

The project served the following population:

Students	K-6 7-8 9-12	3,852 2,143 3,572
Staff	Teachers Other Staff	405 37
Community	Parents Community	17,000 (Est) 1,200 (Est)

The objectives of the program were:

1. To improve school/community cooperation in implementing career education.
2. To provide improved career education counseling.
3. To develop a curriculum tuned to the employment needs of the community.
4. To foster flexibility in students' attitudes, skills, and knowledge.
5. To eliminate distinctions between education for vocational purposes and general academic education.

6. To stress hands-on, work experience, and career exposure activities for students.

7. To coordinate the middle and secondary schools with statewide recommendations for school improvement.

8. To utilize an evaluation plan based on the collection of hard data.

In order to meet these objectives, Studytown undertook the following activities:

> The project provided experiences at all grade levels for students to develop their own abilities to gather, process, use, and act upon information effectively via a variety of decision-making experiences, values clarification, and applications of basic skills to real and simulated experiences in the adult world.
>
> Studytown strived to increase significantly the variety of career awareness, career exploration, and career preparation experiences available to all students as a basis for more informed career planning and decision-making.
>
> The project further developed and implemented a sequential program of economic and consumer understanding for each grade level with the objective of improved decision-making in all areas relating to economics and consumerism.
>
> The project attempted to significantly increase the numbers of people and parents from the community involved in the whole career education effort in this district. Further, emphasis was given to increasing the varieties of different opportunities for contributions these human resources can make to the program.

The project sought to effect incremental improvements in career education at grades K-12. The strategies used to implement career education in the schools included simulations, hands-on activities and seminars, and a focus on increased emphasis on mathematics skills. Voluntary teacher, counselor, and administrator inservice and staff development activities also were conducted.

COGNITIVE CAMP

Cognitive Camp is located in the coastal plains of a deep South state. Cognitive Camp borders an urban area noted for its sports and recreation facilities. The project, serving students drawn from both rural and urban populations, targeted the following populations:

Students	K-7 8-9 10-12	1,568 1,404 1,782
Staff	Teachers Other Staff	180 30

The career education program in Cognitive Camp was a first year effort serving as a model for surrounding LEAs in its area of the state. The objectives for the 1976-77 school year were:

1. To improve overall pupil performance by unifying and focusing basic subjects around a career development theme for students in grades K-12 from the two districts of the county school system involved in the Career Education Project.

2. To provide career education activities with no sex role stereotyping to students in grades K-12 from the two school districts of the county school system involved in the Career Education Project.

3. To have 50% of the classroom teachers in grades 10-12 from the two school districts of the county school system involved in the Career Education Project incorporate activities and resources into their subject matter area context to facilitate the career development of students.

4. To provide intensive guidance and counseling to students in grades 10-12 in both school districts of the county system involved in the Career Education Project, for the purposes of assisting students in selecting an occupational specialty with the following options: intensive job preparation, preparation for postsecondary occupational programs, or preparation for a four-year college.

Strategies used to accomplish these goals were selected with the help of various criteria. The strategic plans included activities for broadening the awareness of the students and increasing the substantive knowledge of the occupational structure and opportunities beyond the students' local areas. The population served has increased with project maturity and as the school staff involved have ascertained the benefits of the program. Community support for the program grew as the year progressed. The project has been refunded locally.

Cognitive Camp is to be used as a model and resource center for the consortium schools of which it is a member. The project in Cognitive Camp should provide relevant information regarding the success of career education in school systems with little prior contact with the concept.

BETTER SPRINGS

Better Springs, a community of 40,000 people, is a first tier suburb of a large, metropolitan area in the northern Great Lakes region. In addition to the varied industry and business available in such an urban area, twelve colleges and universities also extend numerous opportunities to the residents of Better Springs.

The career education activities in the Better Springs schools are concentrated in the junior and senior high schools. The populations targeted by the project were as follows:

Students	Grades 7-9 Grades 10-12	1800 1800
Staff	Secondary School Staff	70
Community	Parents Community	200 80

Prior to the 1976-77 project, there was a strong career education program at the elementary level which was initially funded through vocational education.

The Better Springs career education program is exceptionally strong in its development of innovative and creative curriculum units. The major objectives of the program for 1976-77 were:

1. To develop a positive awareness of career education on the part of the school staff. The target population was to include at least 1/6 of the secondary staff.
2. To develop greater communication and trust between various school and community groups.

3. To develop teaching and youth advising skills in the areas of student outcome objectives.

4. To implement a positive self-concept with awareness of personal characteristics as they relate to career roles.

5. To assist secondary students in applying decision-making skills to personal life-planning.

The project conducted the following activities in support of objectives 1, 2, and 3:

> The project staff presented a variety of awareness activities to all of the five secondary buildings and to various community groups.
>
> A four-credit workshop was offered to all of the professional and para-professional staff and community adults. The course was divided into a two-credit general course, and two-credit options were selected from the following areas:
>
> a. Introduction to Career Education
> b. Advisor Skills
> c. Group Leadership Skills
> d. Implementing Career Education
>
> School-Community visitations and exchanges were offered to at least 12 school and 12 community persons.

Activities supporting objectives 4 and 5:

> At least four of the twelve secondary subject departments were to develop, field test, and disseminate a total of 150 class lessons.
>
> At least 30 students were to be involved with their teachers in mutually selecting one product example for each of the broad objectives of career education to be placed in the student's school record. The students were to be able to react and contribute to their school records through a system of convenient access.
>
> Four of the secondary schools were to have a career education resource center available to all students and staff.

MIDDLESEX

Middlesex is a small town located far from major urban centers in the central Midwest. The community has ready access to a medium-sized, state supported college. The school system became involved in career education through a three year Vocational Education Act project funded by the state and federal governments. The OCE project served the following populations in 1976-1977:

Students	K-6	1,651
	7-9	733
	10-12	720
Staff	Teachers	235
	Other Staff	22
Community	Parents	6,000

The program emphasized the continued development of a comprehensive K-12 program through faculty awareness of the concepts, processes, and procedures of career education. The major objectives of the program were:

1. For the career education coordinator, to conduct an ongoing in-service of faculty.
2. For all teachers, to evaluate their courses of study to reflect and infuse career education concepts and activities into their existing courses of study.
3. For the elementary career education coordinator, to conduct daily in-service assistance to elementary teachers.
4. To significantly improve elementary students' achievement in subject matter areas as indicated by results on standardized Metropolitan Achievement Tests.
5. For the secondary career education coordinator, to conduct daily in-service assistance to secondary teachers with instructional ideas.

6. To provide a summer work experience for twenty selected teachers by the secondary career education coordinator.

7. For the coordinators, to continue development of "teacher made" materials to be used with students to promote career education concepts.

In order to meet the objectives of the project, using a major strategy and emphasis on inservice sessions between career education coordinators and the classroom teachers, the following activities were conducted:

An orientation workshop for all new teachers, student teachers, and building principals hired into the district was conducted in August of 1976.

The Career Education Advisory Council met regularly so that community involvement was insured in the planning of activities.

A summer work experience was provided for selected teachers with employment within the community to give teachers the "real feel" of work experience outside the classroom.

The career education coordinators worked on a daily basis during the school year with classroom teachers, principals, and students.

CAREER CITY

Career City is a bedroom community of 42,000 residents located in a suburban area of a large industrial midwestern state. In proximity to this city are six colleges and universities, two technical training institutions, and more than 600 businesses, retail stores, and offices.

The career education project was designed for all students in grades K-12 in Career City. The activities were infused into the curriculum and were classroom-based. The project began in 1973-1974, funded locally. The population served by the project included:

Students	K-6	3,475
	7-9	1,736
	10-12	2,064
Staff	Teachers	383

In order to insure the implementation of career education activities, a series of inservice activities was conducted beginning before the opening of school and continuing throughout the year. The major objectives of the project were:

1. For students in kindergarten through grade 12, to (1) acquire increased knowledge of career options, (2) be more accepting of different careers, and (3) demonstrate behaviorally their own career development as defined by the seven developmental areas described in the project.
2. For teache[illegible] and teacher education students, who participate in the educational program, to be more knowledgeable about Career Education concepts and to develop skills in infusing Career Education activities across an activities continuum, within their subject area, as defined by the seven developmental areas.

3. For parents, representatives of business, industry, labor, and the professions, and government personnel, to (1) acquire more knowledge about and (2) become more involved with the Career Education efforts of the schools by participating in ongoing school activities and by providing opportunities for students to participate in community activities.

Many activities were undertaken to meet these objectives. Student activities, however, were central to the project and were supported by other groups' objectives. Elementary students were provided with numerous career motivation activities, including experiencing assembly line techniques, going on field trips to observe and interview workers, constructing models, role playing, reading and discussing relevant literature, listening to resource people demonstrate and describe various careers, and observing people at work by means of motion pictures, film loops, and filmstrips.

Career education experiences were also infused into the existing junior high school curriculum and instruction efforts. Junior high students explored a variety of career options as they attempted to gain better insights into their personal career interests and abilities. These exploratory activities were "designed to help them choose appropriate learning experiences as they prepared themselves for life." Seventh and ninth grade students "shadowed" parents and others for one day as they went about their work day. A number of different occupations were studied in this manner. The senior high school focused its efforts upon helping individuals maintain motivation for work and helping them increase their own self and career awareness. Career exploration opportunities were to lead to occupational preparation either in high school or post-high school institutions.

OPPORTUNITY CITY

Situated in New England, Opportunity City has access to a state university and a growing industrial base. A heavy emphasis on teacher preservice education, in close cooperation with the university, is a central feature of the career education program in Opportunity City. The project is in the third year of operation and has developed techniques to facilitate career education as well as economic awareness and decisionmaking. The project served the following population:

Students	K-6 7-9 10-12	3,267 1,472 1,249
Staff	Teachers Counselors	388 11

The major objectives of the project during 1976-77 were:

1. To demonstrate methods and techniques for installing a comprehensive career education model and procedures and techniques which blend career education concepts with the existing curriculum plan. These techniques have been designed to facilitate career education, economic awareness, and improved decision-making on the part of students grades K-12.
2. To demonstrate procedures for initiating career education on the university/college campus.

Some of the project activities were:

To introduce the procedures and techniques blending career education with the existing curriculum, the original thirty-five project teachers trained 338 additional colleagues, who were given intensive training in career education methods. Teachers involved in the project were provided with workshops, seminars, courses, and in-class assistance.

The local state university provided thirty-two university/ college teacher educators with an introduction to the philosophy, content, and methodology of career education. A special planned course was developed for the teacher educators.

To develop a state plan for career education, a state level advisory committee has been formed to facilitate state-wide implementation of career education.

The preservice teacher education program involved training teacher educators at both a state university and a nearby private college. Initial efforts were begun during the 1975-76 school year and were expanded in the current year. Four, six-hour sessions were devoted to achieve this purpose.

Infusion of the total Opportunity City school program from the pilot project was the major activity, K-12, of the project. Four half-day inservice sessions were used as a major strategy, along with more intensive sessions for those teachers desiring more background. Building representatives with experience in career education provided one-to-one inservice support. A demonstration team was used to provide assistance to other school systems throughout the date. A K-12 curriculum guide was produced.

FALLSTAFF

Fallstaff, a city of approximately 50,000 in population, is situated in a northern midwestern agricultural state fairly close to one of the major urban centers of the country. The economy of the community is heavily dependent on manufacturing.

The project served the entire school population from grades K-12. The served population was as follows:

Students	K-5 6-8 9-12	4,131 2,239 3,229
Staff	Teachers Other Staff	565 62

This career education project shifted its focus this year from staff development toward direct emphasis on student outcomes. Implementation of career education in Fallstaff is based on four strategies. Each of these strategies emphasizes either intensive inservice training, utilization of guidance personnel, use of community resources, or leadership skills of career education building coordinators. The Fallstaff effort began in 1971.

Objectives of the program were:

1. To show improvement in student scores during the period September-April in the following learner outcome areas: fourth grade students were to show growth in awareness of self and the world of work; seventh grade students were to show growth in knowledge and understanding of the world of work and the value of education in preparation for that world; tenth grade students were to show growth in decision-making skills as they relate to career planning and preparation.

2. To increase career education classroom activities at each level K-12 and to provide a specified minimum flow of field experience involving business and industry and classroom visitations from representatives of business and industry.

3. To define, field test, and package in a flexible format for implementation and dissemination four models: (1) Intensive Inservice Model, (2) Counselor as Coordinator Model, (3) Community Resource Development Model, and (4) Leadership Training Model.

One of the strengths of the career education project in Fallstaff has been strong community support. The community is actively represented on the career education advisory committee and provides opportunities for career awareness learning experiences for students and teachers.

Three of the activities that were implemented to meet the objectives of the program during the 1976-77 school year are listed below:

> An intense period of inservice was provided for teachers and counselors, consisting of a total of 15 hours devoted to the implementation of career education in the classroom.
>
> One hundred fifty community inservice persons were identified and used in the classrooms of the school system.
>
> The counselor as coordinator model was implemented with the counselors producing a tentative role model document. Some shortcomings in the document have been identified and are being modified.

Although many of the activities undertaken by the project did not involve students directly, it was expected that students would be the recipients of the progress achieved as a result of these activities.

SUMMARY

A few generalizations are suggested by these fifteen abstracts. First, most projects emphasize teacher inservice with a focus on introducing career education and increasing teacher awareness. Only the most mature of the projects are emphasizing curriculum development and specific instructional strategies. Most projects use a "broad brush" approach, in that they attempt to reach large numbers of teachers, hitting the high points as they go. Few projects focus indepth in-services and instrumental assistance to a carefully selected group of teachers. Chapter 5 addresses these concerns, based on reported implementation, as well. After examination of these fifteen projects, we are left with the concern that heavy emphasis on learner outcomes in this evaluation may have been premature. Although many of the projects indicated a direct focus on the OE learner outcomes in their grant proposals, we can not help but observe that teacher inservice was often neither specifically concerned with outcomes nor did it emphasize specific instructional strategies, such as relating career awareness to basic skills.

Secondly, most projects attempted system-wide implementation during the past year; few targeted either specific schools across grade levels or specific grade levels across schools. Of LEAs that did target, few provided rationales for doing so; of those that implemented system-wide, even fewer offered justification. As exceptions to this observation, Prepton, Treksville, and Unique Domain have targeted their services and developed detailed rationales.

Lastly, the majority of projects tried to match activities to objectives; in some cases, however, the objectives and activities were stated so generally that a match between the two was difficult to avoid. It should be noted that the objectives listed in the summaries generally did not include achieving specified gains in learner outcomes. (Table 2.11 presented the learner outcome emphases by site.) Although the projects' proposals listed some or all of the outcomes as a focus, the objectives summarized in this chapter usually were the ones presented by the projects as crucial. In short, most projects did not clearly articulate their assumptions about the relationships among objectives, activities, and the learner outcomes. Nonetheless, these projects were selected, in part, because they exhibit a higher quality of articulation and focus on the learner outcomes than the other incremental K-12 projects funded by OCE.

4

CHARACTERISTICS OF THE RESPONDENTS

Introduction

The previous chapter examined the embedding contexts of the fifteen career education projects and briefly described general program characteristics; this chapter looks at the background characteristics of the respondents. Projects' programmatic efforts vary in relation to how long they have existed, levels of funding, targeted populations, and so on. In parallel, individuals also differ in their prior experiences and knowledge, and these differences may affect the implementation of the program, and the program's results.

Those differences in characteristics must, therefore, be considered in an evaluation. Such characteristics are the "givens" on which programs operate; determination of specific program effects depends on first describing these "givens." Further, since neither the projects nor the respondent groups were selected randomly, determining the generalizability of the results is a function of how similar our samples are to the appropriate populations. The two tasks implied above, i.e., describing the characteristics of the respondent groups and, where possible, comparing the respondent group samples' characteristics to appropriate population characteristics, are the primary topics of this chapter.

Eight variable sets are examined in this chapter, two for each respondent group. By group, these sets include the following:

- Students - Student Characteristics
  - Pretest Scores on Learner Outcome Constructs
- Teachers - Staff Characteristics
  - Teaching Context
- Counselors - Staff Characteristics
  - Counseling Context
- Principals - Staff Characteristics
  - School Context.

The rationale underlying these variable groupings was discussed in Chapter 2; Table 2.2 presented the items included in each of these variable sets. The determinants of implementation at the project level are treated in Chapter 5.

Completing the tasks of description and comparison of variable set interrelationships will permit answering the following important questions.

- What are the characteristics of target and nontarget students, and to what extent are these students' characteristics representative of a national probability sample, analyzed by grade?
- What are the differences between target and nontarget students on pretest scores on the learner outcome constructs, analyzed by grade?

- What are the characteristics of target and nontarget teachers, and to what extent are these teacher's characteristics representative of a national probability sample, analyzed by grade?

- What are the differences between target and nontarget teachers on teaching context variables, analyzed by grade?

- What are the characteristics of target and nontarget counselors, and to what extent are these counselors' characteristics representative of a national probability sample?

- What are the differences between target and nontarget counselors on counseling context variables?

- What are the characteristics of target and nontarget principals, and to what extent are these principals' characteristics representative of a national probability sample?

- What are the differences between target and nontarget principals on school context variables?

Although answering these questions will not permit us to answer any of the policy or evaluation questions listed in Chapter 2, the data which are presented in this chapter do, provide much of the information needed to address questions about interactions between and among implementation/process and outcome variables that are the concerns of Chapters 5 and 6. Fifteen tables will be presented in this chapter to address these questions.

Students

Seven tables are presented in this section; in the first four, target and nontarget students' demographic characteristics are compared with one another and with appropriate population parameters. The fifth and sixth tables present a comparison of target and nontarget students' pretest SOS scores and reading and math achievement pretest results. Norms are available for both the SOS and achievement scores; thus, the norm values have been included on the tables. The seventh table compares target with nontarget students across pretest scores on the remaining learner outcome constructs. As national norms do not exist for these constructs, no further comparisons can be made. In addition, the percent of the variance that can be explained on each construct by the target/nontarget distinction is presented for each of the three pretest tables.

As noted in Chapter 2, a substantial number of students who took the pretest did not participate in either process, or posttesting, or both. It should be noted that inclusion in the "matched" sample does not necessarily mean that a student took all the learner outcome tests and filled in the process battery; however, to be included the student did have to take at least one common outcome test at both the pre- and the posttest and complete the process battery.

Student Background Characteristics

Tables 4.1, 4.2, 4.3, and 4.4 present descriptive data on the demographic characteristics of the matched student samples. The sex and ethnicity characteristics of the samples, presented in Table 4.1, show clearly that generalizing our matched samples' results to the population can only be done with a great deal of risk. Our samples contain a somewhat

Table 4.1

Background Characteristics of the Student Samples: Ethnicity and Sex

Background Characteristics	National*	Target N=2556	Grade 5 Nontarget N=663	Total N=3219	Target N=3487	Grade 8 Nontarget N=422	Total N=3909	Target N=2257	Grade 11 Nontarget N=310	Total N=2567
Ethnicity:										
% Caucasian/ White	84%	74.7	48.7	69.4	81.0	47.9	77.4	76.9	62.9	75.2
% Black/Negro	13%	17.8	18.3	17.9	12.5	14.0	12.6	17.9	2.3	16.0
% Hispanic	3%	0.5	0.3	0.3	0.4	3.3	0.8	0.1	4.8	0.7
% American Indian or Alaskan Native		0.3	2.1	0.7	0.5	5.9	1.8	0.0	8.7	1.1
% Asian or Pacific Islander		6.7	30.6	11.7	5.6	28.9	7.4	5.1	21.3	7.0
Sex:										
% Female	49%	50.5	49.0	50.2	49.1	52.1	49.5	53.7	49.5	53.2

* 1970 U.S. Census; results for ages 9 through 18. U.S. Summary, I-269.

higher percentage of females and a much higher proportion of minority students. The former result varies to a certain extent across grades and between target and nontarget groups. To be sure, the sex differences are probably not large enough to lead to major perturbations in our results, though this possibility will be explored in chapter 5.

Ethnicity differences, on the other hand, are clearly large enough to endanger generalization and to cast doubt upon comparing target with nontarget students. Only at grade eleven is the percentage of whites similar in both the target and nontarget samples, and there the distribution of the remaining students within minority groups varies widely. Because of these differences, we detail the relationship between ethnicity and exposure in chapter 5 and between ethnicity and outcomes in Chapter 6. (Table 4.4 examines ethnicity differences by project.)

Table 4.2 shows that age differences in our grade level samples are virtually nonexistent, but some other differences are present. Our samples tend to come from uniformly larger families than are found in the nation. One possibility that can not be discounted is that many of the students counted themselves. That there is little target/nontarget variation on the number of siblings does give us confidence in our data.

Our students generally watch about the same amount of television as most children in these age groups. Even

Table 4.2

Background Characteristics of the Student Samples: Age, Number of Siblings, Hours of Daily Television Viewing and School Experiences

Background Characteristics	National	Grade 5						Grade 8						Grade 11					
		Target N=2122		Nontarget N=620		Total N=2742		Target N=3480		Nontarget N=434		Total N=3914		Target N=2256		Nontarget N=319		Total N=2575	
		X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD
Average Age	NA*	10.6	.6	10.6	.6	10.6	.6	13.4	.8	13.4	.9	13.4	.8	16.5	.6	16.4	.6	16.5	.6
Average Number of Siblings	2.7**	3.5	1.5	3.5	1.5	3.5	1.5	3.4	1.7	3.5	1.6	3.4	1.7	3.6	1.7	3.7	1.6	3.6	1.7
Average Daily Hours of Television	2.9***	3.4	1.9	4.0	1.8	3.5	1.9	2.8	1.9	3.6	1.9	2.9	1.9	2.1	1.8	1.9	1.6	2.1	1.7
School Experiences: Grade Point Average****	NA	6.1	1.5	6.0	1.7	6.1	1.6	5.6	1.7	5.4	1.7	5.6	1.7	5.6	1.5	5.7	1.3	5.7	1.5
Average Weekly Hours of Homework	NA	2.6	1.1	2.6	1.1	2.6	1.1	2.9	1.0	2.7	1.2	2.8	1.1	3.0	1.1	3.0	1.1	3.0	1.1

* Not appropriate or not available

**1970 U.S. Census

***Vital and Health Statistics, Series 11, Member 147, DHEW, 1975.

****Based on 8 point average: 8=mostly A; 7=about half A and half B; 6=mostly B; 5=about half B and half 4=mostly C; 3=about half C and half D; 2=mostly D; 1=mostly below D.

though fifth graders watch more than eighth graders, and eighth graders more than eleventh, the average across grades (2.8 hours per day) is similar to that found nationally. Further, the pattern is consistent between target and nontarget groups at each grade level.

Grade point average also shows only minor variations within grade. Fifth graders get consistently higher grades than their older brothers and sisters, but even our lowest scoring group (grade eight nontarget) still has a B- average. As important as the similarities of means within grades is the similarity of standard deviations; only in the eighth grade does the difference in means approach one fourth of a standard deviation. Our students are not burdened by homework. As expected, younger students are assigned less work to do at home; even among eleventh graders, however, more time is spent watching television in a night than doing homework all week.

The next table in this series, Table 4.3, describes the education levels of parents as reported by these students. As a cautionary note, these items received lower response rates than any others on the Student Information Form. Despite fluctuations across grade levels and between target and nontarget groups within grade levels, there are few substantial differences. The data tend somewhat to reflect national census figures as well. However, these students appear to come from parents with higher educational attainments than would be expected, probably for these reasons:

Table 4.3

Background Characteristics of the Student Samples: Parents' Educational Levels

Background Characteristics	National	Grade 5			Grade 8			Grade 11		
		Target N=1487	Nontarget N=308	Total N=1795	Target N=2786	Nontarget N=307	Total N=3093	Target N=2043	Nontarget N=277	Total N=2320
Father's Education Level:										
% Less Than Eighth Grade	10%*	5.2%	2.9%	4.5%	4.0%	5.3%	4.1%	4.5%	2.1%	4.0%
% Completed Eighth Grade	8%	5.8	4.9	5.5	5.6	6.5	5.7	6.2	2.8	5.5
% Some High School	20%	9.5	10.7	9.9	11.2	12.9	11.5	12.4	7.7	11.5
% High School Graduate	34%	27.9	36.4	30.5	28.5	41.2	30.3	27.8	38.5	29.9
% Technical, Business, etc. School	NA	5.2	2.9	4.5	5.3	4.7	5.2	6.4	5.2	6.2
% Some College	12%	9.7	7.3	9.0	9.0	11.2	9.3	11.8	16.1	12.6
% College Graduate	15%	21.6	15.0	19.6	18.9	11.2	17.8	17.4	17.8	17.5
% Post College	NA	6.3	7.0	6.5	17.4	7.1	15.9	13.5	9.8	12.8
Mother's Education Level										
% Less Than Eighth Grade	13%**	3.8%	4.2%	3.9%	78.8%	3.6%	2.5%	2.6%	2.1%	2.5%
% Completed Eighth Grade	9%	4.5	10.3	6.2	88.1	4.1	5.1	4.8	4.1	4.7
% Some High School	25%	9.8	10.8	10.1	11.9	15.5	12.5	13.6	12.0	13.3
% High School Graduate	31%	36.0	35.2	35.8	40.8	43.0	41.1	40.0	45.4	41.0
% Technical, Business, etc. School	NA	8.3	7.5	8.1	8.7	12.4	9.2	9.5	9.3	9.4
% Some College	9%	10.4	9.4	10.1	10.4	7.3	10.0	11.8	11.0	11.7
% College Graduate	5%	20.6	15.5	19.2	14.8	10.4	14.1	12.2	13.1	12.4
% Post College	NA	6.3	7.0	6.5	5.8	3.6	5.5	5.4	3.1	5.0

*Male family heads with children under 18; 1970 Census.

**Female family heads with children under 18; 1970 Census.

(1) students who responded were more likely to be from homes in which education was often discussed, and this is more likely to happen as parental educational levels increase; (2) young people, to inflate their own esteem, are likely to misperceive their parents' education in a positive direction; they assume that their parents have more education than they actually have. The final table in this set, Table 4.4, presents the percentages of ethnic groups in the target and nontarget groups by project for each grade level. Table 3.1 illustrated the wide variation in ethnicity across the project communities, and Table 4.1 demonstrates large target and nontarget ethnicity differences as well. Both Chapter 5 and Chapter 6 highlight the importance of this background variable in the analysis.

Learner Outcome Pretest Results

Tables 4.5, 4.6, and 4.7 present, respectively, pretest scores on the two second order SOS scales, reading and math achievement scores, and scores on the learner outcome constructs for each grade level and by target/nontarget within grades. Where appropriate, we also have presented national norm data for the scales. It should be noted that these national norm data are somewhat artificial and are included primarily for a reference point. The SOS was normed using first-order rather than second-order factor scores; the means of fifty and standard deviations of ten would be the norm points if treated in this way. The achievement scores

TABLE 4.4

Background Characteristics of the Student Samples: Ethnicity by Project *

Project	Grade 5						Grade 8						Grade 11					
	% White		% Black		% Other		% White		% Black		% Other		% White		% Black		% Other	
	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non
Jobland	77		18		5		78		18		4		75		23		2	
Workville	93		1		6		93		1		6		95		2		3	
Treksville	16		80		4								49		46		5	
Awaresville													86		14		0	
Vocation Beach	33		65		2		37		62		1		34		64		2	
Unique Domain	27	0	68	100	5	0	22	51	78	46	0	3	23		75		2	
Mt. Exploration	87		9		4		80		17		3		84		13		3	
Prepton	72	61	27	31	1	8	74	64	22	31	4	3	70	55	29	42	1	3
Studytown	50	34	12	6	38	60	49	37	14	7	37	56	57	31	8	5	37	64
Cognitive Camp	63	76	34	17	3	7	82		14		4		83		17		0	
Better Springs							95		1		4		98		1		1	
Middlesex	87		1		12													
Career City	95		2		3		95		0		5		94		1		5	
Opportunity City	96		0		4		99		0		1		99		0		1	
Fallstaff	99		0		1		96		0		4		98		0		2	

*a blank indicates no students of that grade and/or group Membership designation were available from the project.

presented for the student samples are based on a variety of instruments which NTS rescaled, using T transformations, to give a mean of fifty and a standard deviation of ten. Had a single test been used, appropriate norm values would have been utilized.

Few differences between target and nontarget students' second-order SOS scores are evident on Table 4.5. In all cases, what differences exist are well within a fourth of a standard deviation. Further, the directions of the differences are not consistent across grades. The target students at the fifth grade, but not at the eighth and eleventh, have slightly higher pretest scores on both the Social/Personal Perceptions and the Academic Perceptions constructs.

A very different situation is evident in the target and nontarget samples' achievement pretest scores. Table 4.6 presents complete data for the fifth and eighth grade samples only; no eleventh grade nontarget students provided achievement scores. Among fifth graders, statistically significant differences favoring the target students are present for reading and especially, math achievement. The very size of the math difference indicates that any analysis of the posttest data probably will be skewed. Covarying out the effects of pretest, the usual method of adjusting for pretest differences, is most appropriate when the initial difference is not large. Such is not the case here. The impact of these pretest differences on the common design is addressed in Chapter 6, although it seems evident, a priori, that our

TABLE 4.5

Comparisons of The Student Samples' Pretest Scores on The Second-Order SOS Scales

Grade 5

Second Order SOS Scales	National		Matched Target N= 2075		Matched Nontarget N= 363		Matched Total N= 2438		Percent Variance Explained By Group Membership
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	R^2
Social/Personal Perceptions	50.0	10.0	50.6	9.5	49.7	9.8	50.4	9.5	0.1%
Academic Perceptions	50.0	10.0	51.1	9.8	49.2	9.3	50.8	9.7	0.4%

Grade 8

Second Order SOS Scales	National		Matched Target		Matched Nontarget		Matched Total		Percent Variance Explained By Group Membership
			N= 1668		N= 154		N= 1822		
Social/Personal Perceptions	50.0	10.0	50.6	9.9	48.6	11.1	50.5	10.0	0.3%
Academic Perceptions	50.0	10.0	49.4	9.9	49.9	10.9	49.4	10.2	0.0%

Grade 11

Second Order SOS Scales	National		Matched Target		Matched Nontarget		Matched Total		Percent Variance Explained By Group Membership
			N= 1192		N= 27		N= 1219		
Social/Personal Perceptions	50.0	10.0	51.3	9.3	49.7	11.0	51.3	9.3	0.1%
Academic Perceptions	50.0	10.0	49.2	9.6	48.9	10.1	49.2	9.6	0.3%

TABLE 4.6

Comparisons of The Student Samples' Pretest Scores on Reading and Math Achievement

Grade 5

Achievement Scores	National		Matched Target N= 2288		Matched Nontarget N= 402		Matched Total N= 2690		Percent Variance Explaine By Group Membershi
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	R^2
Reading Achievement	50.0	10.0	46.8	12.9	42.6	11.1	46.2	12.7	1.4%
Math Achievement	50.0	10.0	44.0	13.5	37.6	9.9	42.3	13.7	8.8%

Grade 8

			N= 2603		N=336		N= 2939		
Reading Achievement	50.0	10.0	37.6	12.5	42.0	9.9	38.1	12.3	1.3%
Math Achievement	50.0	10.0	36.1	12.0	35.8	10.8	36.1	11.8	0.0%

Grade 11

			N= 1007		N= 0*		N= 1007		
Reading Achievement	50.0	10.0	35.6	16.3			35.6	16.3	NA
Math Achievement	50.0	10.0	36.2	17.0			36.2	17.0	NA

* No nontarget eleventh grade achievement results were available

fifth grade target and nontarget samples may be too different to support our analyses on this particular outcome.

Eighth grade differences are less pronounced, but only in comparison to the fifth grade. The reading achievement differences approaches one half standard deviation, in this case favoring the nontarget group. Although within the "range" of analysis of covariance, this difference is large enough to cast doubt on the overall analysis for this grade eight outcome.

One other point can be made about these achievement data; that is, the scores are lower than the national "norms." Although we have no ready explanation for these lower scores, those who would generalize from the results to other students should be cautioned. It would appear that, in terms of reading and math achievement, the target and nontarget students at the fifth and eighth grades are probably somewhat atypical. Further, given these low pretest scores, it is likely that our overall posttest analyses will provide little useful information about the effects of career education on reading and math achievement.

Table 4.7 presents target and nontarget students' scores on each of the learner outcome constructs. With few exceptions, differences between the target and nontarget groups are small, rarely exceeding a fourth of a standard deviation. Further, target or nontarget group membership explains one percent or more of the pretest mean differences for only four of the twenty-five comparisons (or only sixteen

TABLE 4.7
COMPARISONS OF THE STUDENT SAMPLES' PRETEST SCORES ON CAREER EDUCATION LEARNER OUTCOME CONSTRUCTS

CAREER EDUCATION CONSTRUCTS	GRADE 5							GRADE 8							GRADE 11						
	Matched Target N=2228		Matched Nontarget N=639		Matched Total N=2867		Variance Explained by Group Membership	Matched Target N=3076		Matched Nontarget N=363		Matched Total N=343[illegible]		Variance Explained by Group Membership	Matched Target N=2059		Matched Nontarget N=173		Matched Total N=2232		Variance Explained by Group Membership
	X	SD	X	SD	X	SD	R^2	X	SD	X	SD	X	SD	R^2	X	SD	X	SD	X	SD	R^2
Affective:																					
Occupational Self Awareness	16.5	6.6	15.3	6.1	16.3	6.5	0.6	22.9	7.4	21.3	7.5	22.7	7.4	0.3	3.5	5.9	3.5	6.3	3.5	5.9	0.0
Work Values	34.1	4.3	33.0	4.3	33.8	4.3	0.8	64.9	7.2	63.6	7.2	64.7	7.3	0.1	66.4	6.1	65.0	6.1	66.3	6.1	0.5
Interest in Career Preparation	NA		NA		NA		NA	10.5	3.6	11.6	3.5	10.6	3.6	1.7	11.0	3.6	11.1	3.5	11.0	3.6	0.1
Attitudes Toward Work	27.5	5.6	25.9	5.2	27.1	5.6	0.9	12.6	2.4	11.7	2.4	12.4	2.4	0.9	8.1	1.6	7.8	1.4	8.0	1.6	0.4
Cognitive:																					
Knowledge of Work Values	39.0	3.8	37.9	3.7	38.8	3.8	1.0	73.3	7.7	71.0	7.0	73.0	7.6	0.9	84.5	6.7	85.4	6.7	84.6	6.7	0.3
Decisionmaking	NA		NA		NA		NA	13.0	2.1	12.2	2.1	12.9	2.1	1.3	104.7	11.9	102.9	13.3	104.6	12.0	0.1
Job Seeking/ Job Getting	48.8	5.6	47.2	5.0	48.5	5.5	0.8	31.1	3.6	[illegible].6	3.0	30.9	3.5	1.7	25.8	3.7	24.4	2.8	25.8	3.7	1.1
Career Awareness	20.0	2.4	19.7	2.3	20.0	2.4	0.2	33.1	4.7	32.3	4.3	33.0	4.6	0.4	26.0	3.5	26.9	3.1	26.1	3.5	0.7
Economic Awareness	8.4	1.8	8.0	1.7	8.3	1.8	0.4	7.4	1.5	7.2	1.4	7.3	1.5	0.2	4.8	1.0	4.8	1.0	4.8	1.0	0.0

percent of the comparisons).

Among fifth graders, although the differences are small, there is a clear pattern of target students having higher pretest scores. With but one exception, Interest in Career Preparation, the eighth grade pattern in similar. At the eleventh grade level, however, the results are mixed. In general, these data show neither large nor consistent differences across the three grade level comparisons. Thus, these data are well suited to this evaluation design.

Teachers

We have included four tables for describing the teacher samples. Table 4.8 examines staff characteristics of teachers by grade and by group membership (i.e., target or nontarget).* Where possible, we have compared these teacher data with national figures. The second table, Table 4.9, describes the teaching context for these samples. Tables 4.10 and 4.11 present project differences for age and ethnicity.

The single most important result presented in Table 4.8 is that there are no statistically significant differences between target and nontarget teachers at either the fifth, eighth, or eleventh grade levels. Further, for those characteristics on which national data are available, it appears that our teacher samples do not differ markedly. This does not mean that no important differences exist, however; it is to a discussion of these that we now turn.

Target teachers are older than their nontarget colleagues though markedly so only at grade five. For that matter, there also is a slight tendency for target teachers to be older than the national average. The effects of these age differences for teachers are addressed in Chapter 5.

Although the differences are not large, fifth and eighth grade target teachers include a smaller percentage of females in their ranks than do nontarget teachers at those grade levels. Nontarget teachers have a higher percentage of minority group members than their target peers. It is clear that this finding is a result of community differences.

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*See page 2.64 for a discussion of the project's identification of target and nontarget teachers.

TABLE 4.8

Target and Nontarget Teachers' Staff Characteristics and Comparisons with National Teacher Characteristics

Staff Characteristics	National*	Grade 5			Grade 8			Grade 11		
		Target (N=185)	Nontarget (N=17)	Total (N=202)	Target (N=250)	Nontarget (N=26)	Total (N=276)	Target (N=319)	Nontarget (N=66)	Total (N=385)
Average age - in years	39.6	38.9	30.9	38.2	37.7	34.6	37.4	37.4	36.8	37.3
Sex - % females**	83.3 (elem) 45.7 (Sec)	81.9%	100%	83.5%	55.1%	60.0%	55.6%	50.7%	50.0%	50.6%
Ethnicity - % Nonwhite**	13.4 (elem) 10.1 (Sec)	13.6%	23.5%	14.4%	15.0%	23.1%	15.8%	7.3%	9.1%	7.6%
Employment Status - % who are not regular teachers	NA***	12.1%	0%	11.1%	18.1%	30.1%	19.3%	17.9%	1.5%	15.1%
Degree Held****	1.9	2.3	3.1	2.3	2.6	2.4	2.6	2.9	2.4	2.8
% not working toward an additional degree	NA	47.9%	47.1%	47.8%	49.2%	76.1%	52.7%	48.7%	71.2%	52.7%
Average number of years teaching experience	NA	12.2	7.3	11.8	12.0	10.8	11.9	11.8	12.9	12.0
% who have been										
Counselors	NA	2.2%	0	2.0%	8.7%	0	7.8%	4.5%	4.7%	4.6%
Assistant Principals	NA	2.7%	0	2.5%	5.8%	0	5.2%	2.6%	4.7%	2.9%
Principals	NA	4.3%	0	4.0%	6.4%	0	6.0%	1.3%	1.6%	1.3%
LEA Administrators	NA	0	0	0	1.2%	0	1.1%	2.6%	0	2.1%
Other Educational Positions	NA	1.9%	0	1.7%	8.0%	0	7.2%	4.2%	3.9%	4.1%
Average number of noneducation occupations										
Prepared for	NA	2.1	1.6	2.1	2.5	2.0	2.5	2.5	2.1	2.4
Employed in	NA	2.3	1.9	2.2	2.6	2.0	2.6	2.5	2.5	2.5
Percent holding parttime jobs:										
in summer	NA	25.3%	6.2%	23.7%	42.7%	30.8%	41.5%	37.9%	33.8%	37.2%
in evening	NA	9.3%	6.2%	9.1%	15.1%	11.5%	14.7%	17.0%	12.3%	16.2%
on weekends	NA	13.3%	6.2%	12.7%	16.4%	7.7%	15.5%	19.1%	9.4%	17.4%

* These data, unless otherwise noted, are from U.S. Census Bureau, Occupational Census, 1975.

** National Center for Education Statistics, The Condition of Education, 1977, p. 168.

*** NA - Not available

**** Scored as follows: (1) BA/BS; (2) BA/BS plus additional coursework; (3) MA/MS; (4) MA/MS plus additional coursework; (5) Ed. D./Ph.D.

Projects that are not implemented system-wide also have greater percentages of minority groups in their populations. This was particularly the case for Unique Domain, Prepton, and Awaresville (see Table 3.1).

Somewhat surprisingly, in view of their older age, target teachers are less likely to have "permanent" status as teachers at the fifth and eleventh grades, although the pattern reverses at the eighth. Given the lack of consistency across grades and the small nontarget sample sizes, these results are more likely to indicate chance fluctuation than any underlying cause.

Although undoubtedly a partial function of age, target teachers possess, on the whole, higher academic degrees than the nontarget teachers and are more likely to be working toward even higher ones. The degree-attainment difference between target and nontarget teachers is evident at the eleventh grade level; the degree-working-toward difference between target and nontarget teachers is present at both secondary levels. Finally, once the age differences at the fifth grade level are considered, the average number of years of teaching experience does not differ very much between those in the target and nontarget groups.

The final three variables in Table 4.8 describe the prior paid work experiences of sample teachers. For these variables, no comparable national figures are available. In all cases, even at the eighth and eleventh grade levels where age differences are not marked, target teachers bring a greater wealth of experience to their classrooms than their nontarget colleagues. Whether this indicates that target teachers are more ambitious, have more "energy," are more competent, or are simply older and thus have had more experiences is unknown. The effects of this wider experience on what is actually done in the classroom is one of the topics for the next chapter.

Table 4.9 describes the teaching context differences between target and nontarget teachers at the three grade levels. The first two variables, teaching load and planning time, show target teachers' burden to be slightly less than that of nontarget teachers. Nontarget teachers have more students assigned to them and less time for planning during the school day. The third variable, the percentage of teachers who teach in various subject areas, provides some intriguing results. At the fifth grade level, target teachers are much more likely to classify themselves as "elementary" teachers rather than as teachers within a specific subject area. This may indicate a greater tendency toward staff role differentiation in the nontarget schools; however, this result may be only an anomaly resulting from the small nontarget sample size. At the eighth and eleventh grade levels, no consistent differences exist between the target and nontarget teachers.

The process results presented in Chapter 5 suggest that levels of teacher reported implementation of career education vary by project. Further, the results suggest that a number of demographic variables within the staff characteristics determinant of implementation variable set

TABLE 4.9

Differences Between Target and Nontarget Teachers' Teaching Context

Teaching Context Variables	Grade 5 Target (N=185)	Grade 5 Nontarget (N=17)	Grade 5 Total (N=202)	Grade 8 Target (N=250)	Grade 8 Nontarget (N=26)	Grade 8 Total (N=276)	Grade 11 Target (N=319)	Grade 11 Nontarget (N=66)	Grade 11 Total (N=385)
Average number of Students taught per day	46.7	58.8	47.8	121.9	124.1	122.1	105.7	111.5	106.7
Average amount of planning time (1 = none; 2 = ≤ 1; 3 = > 1 hr)	1.81	1.65	1.80	2.13	2.07	2.12	2.24	2.22	2.24
Subject Area(s) taught - percent teaching:									
Mathematics/Arithmetic	3.9%	6.7%	4.1%	20.6%	29.2%	21.6%	15.7%	17.5%	16.0%
Vocational/technical/business	0	0	0	11.6%	0	10.3%	29.5%	21.1%	28.1%
Natural Sciences	0.6%	6.7%	1.0%	12.2%	4.2%	11.3%	10.3%	8.8%	10.1%
Social Sciences/Social Studies/History/Government	2.2%	6.7%	2.6%	20.1%	20.8%	20.2%	14.2%	12.3%	13.9%
Language Arts/English	4.4%	20.0%	5.6%	22.8%	33.3%	23.9%	25.6%	35.1%	27.2%
Elementary	87.8%	53.3%	85.2%	1.6%	4.2%	1.9%	0	0	0
Other	1.17%	6.7%	1.5%	11.1%	8.3%	10.8%	4.6%	5.3%	4.7%

are related strongly, though they are not statistically significant, to teacher reported implementation. The data presented in Tables 4.10 and 4.11 allow an examination of the relationships of two of these demographic variables, ethnicity and age, with project for target and nontarget teachers. Few surprises are evident from the ethnicity data; for the most part the percentage of minority teachers is roughly proportional to the percentage of minority students. The major exception to this pattern occurs in Vocation Beach, a site with a predominantly black student population but, at least as reflected in our samples, predominantly black teachers at only the eighth grade. Target-nontarget differences tend to reflect the overall pattern presented in Table 4.8, with Treksville and Unique Domain showing the largest proportion of minority nontarget teachers across the grades. The mean age of each of the teacher samples is presented in Table 4.11. Although the differences across projects appear fairly large (about ten years between the oldest and youngest groups), the target-nontarget differences are even more marked, especially at grade five. The very uneven distribution of nontarget teachers across sites precludes drawing influences from these findings, however.

TABLE 4.10

Demographic Characteristics of the Teacher Samples: Ethnicity by Project*

Project	Grade 5						Grade 8						Grade 11					
	% White		% Black		% Other		% White		% Black		% Other		% White		% Black		% Other	
	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non	Target	Non
Jobland	80		20				88		8		4		76		18		6	
Workville	100						100						100					
Treksville	60	25	40	75			100	94	0	6			83		1			
Awaresville													87		9		4	
Vocation Beach	71		19				12		88				88		12			
Unique Domain	67	67	33	33				40		60			50		50			
Mt. Exploration	67		33				69		31				100					
Prepton	83	100	17				74		26				78		22			
Studytown	87		4		9		76		7		17		91				9	
Cognitive Camp	85	100	15				79						87	82	13	18		
Better Springs							94		6				89	92	11	8		
Middlesex	100																	
Career City	100						100						100					
Opportunity City	95		5				100						100					
Fallstaff	100						96		4				100					

*a blank indicates no teachers of that grade and/or group membership designation were available from the project.

TABLE 4.11

Demographic Characteristics of the Teacher Samples: Mean Age by Project*

Project	Grade 5		Grade 8		Grade 11	
	Target(N)	Nontarget (N)	Target (N)	Nontarget (N)	Target (N)	Nontarget (N)
Jobland	39.5(25)		36.2(26)		36.2(21)	
Workville	35.7 (12)		37.6(7)		37.8(44)	
Treksville	32.9 (5)	29.5 (2)	38.7(19)	33.2 (13)		
Awaresville						
Vocation Beach	36.3 (7)		37.9 (8)		37.8(16)	
Unique Domain	29.4 (7)	44.0 (2)	33.4 (5)	42.8 (5)		
Mt. Exploration	36.6 (12)		39.5(13)		33.6(13)	
Prepton	43.7(5)	33.0 (1)				
Studytown	35.2(38)					
Cognitive Camp	33.2(15)	24.0 (12)			31.8 (17)	34.6 (25)
Better Springs			35.6(67)		38.6(64)	36.2(17)
Middlesex	40.2(9)					
Career City	39.0(22)		30.6(14)		33.9(15)	
Opportunity City	38.2(9)		39.4(8)		43.6(5)	
Fallstaff	39.1(11)		34.8(26)		35.4(23)	

*a blank indicates no teachers from that grade or target group membership designation were available from the project.

Counselors

The differences in the characteristics of target and nontarget counselors, presented in Table 4.12 are not statistically significant; further, comparisons of their characteristics with available national values show no marked differences.

The target group includes greater percentages of whites and consists, on the average, of slightly younger people than the nontarget group. The nontarget group has slightly more counseling experience and a slightly higher educational background than the target counselors. Both groups contain higher percentages of females than is nationally common, and nontarget counselors have greater percentages of females than target counselors. As all of these results are well within the range of chance variation, it is reasonably safe to assume that our target and nontarget samples are not dissimilar.

When we examine the noneducational backgrounds of target and nontarget counselors, the latter emerge as more experienced in nonschool occupational settings. Nontarget counselors have prepared for, and been employed in, more different occupations. Further, a larger percentage of this group hold summer jobs. Target counselors do, however, have a greater tendency to hold parttime jobs after school and on weekends. Nontarget counselors' relatively more extensive noneducational experience may, in part, explain their tendency to be actually more active in some career education activities, a topic addressed in Chapter 5.

TABLE 4.12

Target and Nontarget Counselors' Staff Characteristics and Comparisons with National Counselor Characteristics

Staff Characteristics	National*	Target (N=119)	Nontarget (N=13)	Total (N=132)
Average age - in years	NA**	40.8	42.4	41.0
Sex - % female***	49.5	59.4%	77.8%	62.0%
Race - % nonwhite	10.4%	11.8%	30.8%	13.6%
Degree held (1 = BA; 2 = BA+; 3 = MA; 4 = MA+; 5 = Ph.D.)	NA	3.70	3.92	3.72
Average number of years of counseling experience	NA	9.0	10.5	9.2
% who have been teachers	NA	97%	100%	98%
assistant principals	NA	11.6%	0%	11.4%
principals	NA	6.3%	7.7%	0.4%
LEA administrators	NA	2.7%	0	2.4%
in other educational positions	NA	0	0	0
Average number of non-educational occupations:				
prepared for	NA	2.1	3.2	2.2
employed in	NA	2.4	2.8	2.5
Percent holding parttime jobs:				
in summer	NA	29.8%	38.5%	30.7%
in evening	NA	14.2%	7.7%	13.5%
on weekends	NA	17.1%	15.4%	16.9%

* Data unless otherwise specified are from U.S. Census Bureau, Occupational Census, 1975.

** NA = Not available

*** National Center for Educational Statistics, The Condition of Education, 1977, p. 165.

Table 4.13 presents a comparison of target and nontarget counselors' responses to the counseling context variables. The most notable difference on this table is the average number of students assigned to the members of the target and nontarget counseling groups; the load for nontarget counselors is nearly twice as large. It would seem, however, that this added load does not deter nontarget counselors from carrying out their activities at about the same rate as the target group. The particular placement and follow-up activities in which target and nontarget counselors are involved differ; however, neither group has an edge over the other. Further, it should be noted again that the very small nontarget sample precludes a great deal of confidence in any of these results.

TABLE 4.13

Differences Between Target and Nontarget Counselors' Counseling Context

Counseling Context Variables	Target (N=113)	Nontarget (N=13)	Total (N=126)
Average Number of Students assigned for counseling	371.2*	722.7*	408.0
% Working time spent in following areas:			
student conferences	33.7%	37.5%	34.1%
group counseling	10.2%	13.7%	10.5%
parent conferences	7.6%	9.2%	7.8%
teacher conferences	11.8%	11.8%	11.8%
record-keeping	16.7%	12.1%	16.3%
community contacts	5.2%	4.5%	5.1%
professional meetings	4.8%	5.2%	4.9%
other	10.0%	6.0%	9.6%
% time with students spent in the following areas:			
career vocational guidance	15.3%	19.1%	15.6%
college entrance	11.8%	10.6%	11.6%
other postsecondary education	7.7%	9.0%	7.8%
attendance and discipline	14.6%	11.6%	14.2%
personal problems	20.4%	20.2%	20.2%
curriculum choice	18.7%	19.7%	19.4%
other	11.5%	9.8%	11.2%
% using following placement or follow-up activities:			
canvas employers in community	42.9%	50.0%	43.8%
canvas other employers	12.7%	20.0%	13.7%
contact state employment agencies	65.1%	50.0%	63.0%
contact private agencies	33.3%	40.0%	34.2%
review want ads	63.1%	70.0%	65.7%
advise students on job getting and job seeking	95.2%	100.0%	95.9%
arrange job interviews	61.3%	60.0%	61.1%
assist in part-time placement	85.7%	80.0%	84.9%
Assist in summer placement	84.1%	80.0%	83.6%
follow-up post graduates	63.5%	40.0%	60.3%
speak to civic groups	15.9%	11.1%	15.3%
canvas labor unions	11.1%	30.0%	13.7%
arrange apprenticeships	34.9%	33.3%	34.7%
assist in placement of post graduates	52.5%	33.3%	50.0%

*Significant at .01 level, two-tailed F test.

Principals

As Table 4.14 illustrates, target principals tend to be younger and, as a group, have lower percentages of females and minorities than do nontarget principals. Of these differences, only age is statistically significant. The importance of this characteristic is addressed in Chapter 5. Ethnic differences probably are, as mentioned for teachers, due to differences in the percentages of minorities in those communities with nontarget schools. In communities with nontarget schools, well over thirty percent of the population is nonwhite, in target-only communities, less than twenty percent are members of minority groups. Among the latter communities, only Vocation Beach has an ethnic majority, and Vocation Beach comprises a very small portion of the sample.

Nontarget principals average a bit more than two years more experience than target principals; however, even these target principals have an average of nearly eleven years of experience. Thus, despite the age differences between target and nontarget principals, the target principals hardly qualify as neophytes.

The responses by target principals to the last two sets of items in Table 4.14 indicate that they have more extensive noneducational backgrounds than their nontarget peers. They have prepared for, and been employed in, more nonschool occupations and are more likely to hold parttime jobs in the summer, after school, and on weekends.

TABLE 4.14

Target and Nontarget Principals' Staff Characteristics

Staff Characteristics	Target (N=125)	Nontarget (N=21)	Total (N=146)
Average age	43.9*	50.6*	44.8
Sex - % female **	12.5%	22.2%	13.9%
Race - % Nonwhite	10.5%	23.8%	12.4%
Average Number of Years Experience as Principal	10.8	13.2	11.1
Average number of noneducational occupations:			
prepared for	2.7	1.9	2.6
employed in	2.8	2.6	2.8
% Holding Part-time Jobs:			
in summer	24.0%	11.1%	23.0%
in evening	6.7%	5.6%	6.6%
on weekends	11.8%	0	10.2%

*Significant at the .05 level, two-tailed F test.

**The only available national data for principals is for this characteristic: National % Female equals 12.7. From DHEW, National Center for Educational Statistics. The Condition of Education, 1977, p. 165.

School program characteristics are presented in Table 4.15 for target and nontarget schools. Although none of the comparisons are statistically significant, there are a number of interesting and suggestive differences. The size of the community (or locale) is not related in any direct manner with whether or not the school is target or nontarget. What size differences there are tend to balance out.

Target schools do, on the other hand, tend to have more guidance, library, and professional support (e.g., reading specialists) personnel than nontarget schools. Only in number of classroom aides are nontarget schools better off. The larger numbers of professional support personnel probably explain some of the lower burden for target teachers described previously. Even though target schools are slightly more likely to have more than one daily session and, for that matter, to have slightly longer sessions, the differences are quite small.

No clear pattern emerges when we examine the distribution of disadvantaged students. Target schools have larger percentages of Title I eligible and AFDC students, but nontarget schools have a slightly larger percentage of free or reduced-price lunch students. The nontarget schools classification includes a slight bias toward the secondary levels; it would appear this bias probably accounts for these differences. Further, no clear pattern is evident in the average daily attendance or dropout rates. Nontarget schools do appear, however, to have greater student mobility rates.

TABLE 4.15

Comparison of Target and Nontarget Schools' Program Characteristics

School Program Characteristics	Target (N=125)	Nontarget (N=21)	Total (N=146)
Size of Community			
Rural	11.2%	0%	9.6%
Small Town	33.6%	33.3%	33.6%
Small City	8.8%	0%	7.5%
Suburb of Mid-Sized City	7.2%	19.0%	8.9%
Large City	20.0%	38.1%	23.3%
Suburb of Mid-Sized	7.2%	4.8%	9.6%
Very Large City	4.0%	4.8%	4.1%
Suburb Very Large City	4.8%	0%	4.1%
Number of School Staff			
Guidance/Counseling	3.2	2.4	3.1
Librarians	1.5	1.3	1.5
Professional Support	4.1	3.8	4.0
Classroom Aides	4.4	6.6	4.8
Other Aids	4.1	3.8	4.0
% With More Than One Daily Session	6.2%	5.0%	6.0%
Average Number of Hours Per Session	5.4	5.2	5.4
Free or Reduced-Price Lunch	29.2	31.0	29.4
Title I Eligible	32.6	27.1	31.9
AFDC	20.1	14.2	19.3
% Average Daily Attendance *	92.6	91.2	92.4
% Annual Mobility	14.6	21.3	15.4
% Annual Drop-Out Rate **	12.5	12.3	12.5
Frequency of Community Involvement			
Business	1.9	1.5	1.9
Labor	1.1	0.7	1.1
Parents	2.6	2.6	2.6
Other	1.3	1.0	1.2
(1 = never, 2 = seldom, 3 = occasionally, 4 = very often)			

* National average daily attendance equals 91.3%. From DHEW/National Center for Educational Statistics. The Condition of Education, 1977, p. 162.

** National annual dropout rate equals 13.0% (combining rates for 16-17 and 18-19 year-old groups). From DHEW/National Center for Educational Statistics. The Condition of Education, 1976, p. 210.

Most of the career education projects are working to increase community-school interaction. The data on frequency of community involvement in the schools indicate that project efforts have been somewhat successful. Only in the case of parents do nontarget schools do as well, and parental involvement (e.g., PTA) has long been a common practice. Of course, except for parents, most of this participation takes place, on the average, infrequently.

A few points need to be reiterated in summarizing this chapter and its two tasks of (1) describing the samples, including comparing target and nontarget samples, and (2) judging the generalizability of the samples to their appropriate populations. The student target and nontarget samples are not similar. If nothing else, the percentage of minority group members in the respective groups would substantiate this conclusion; however, additional support for this conclusion comes from the fifth and eighth grade achievement results. Our target and nontarget samples do differ; further, they differ in what are probably educationally significant ways. As a result, generalizing students' learner outcome results beyond the individual project level is probably unwise.

The data presented for the professional staff groups allow us some confidence in stating that few differences (and very few of them are statistically significant ones) divided the target and nontarget samples. Only age was statistically significant and, even then, only for principals and fifth grade teachers. Further, characteristics of the teaching, counseling, and school contexts did not differ significantly or consistently for target and nontarget groups. Finally, the samples matched well with available national data.

5

THE IMPLEMENTATION AND PROCESS OF CAREER EDUCATION

This chapter examines the implementation/process of career education across fifteen projects. The chapter begins by presenting an implementation/process model which posits a set of determinants of implementation and traces the effects of these determinants and five process dimensions. These process dimensions include changes in tangible resources, intangible resources, knowledge and understanding, role/behavior and value internalization (cf. Fullan and Pomfret, 1977). The five process dimensions serve to define the ways in which career education is manifested at the school and classroom levels. Finally, consideration is given to student exposure to career education activities. Exposure is seen as differing from student to student, and is defined as a product term composed of implementation quality and opportunity to learn.

Much of our discussion on determinants of implementation derives from observation of the fifteen projects, review of available project documentation and periodic interaction with local project directors and staff over a fifteen month period. Given that there were only fifteen projects, we avoided use of formal measures of association and relied on frequency counts and qualitatively based analyses of tendency and pattern. Measurement of the tangible and intangible resources process dimensions was based on interviews with the project directors; measurement of the other three process dimensions relied on questionnaires completed by teachers, administrators and counselors as well as interviews with the project directors. Student exposure was operationalized through student self-reports regarding frequency of exposure to a broad range of career education type activities.

As noted above, we queried five categories of informants regarding quality of implementation and exposure: students, teachers, administrators, counselors, and project staff. For students and teachers we address four questions about implementation and exposure: (1) What are the differences between target and nontarget groups, (2) What are the differences across the three grade levels, (3) How do the projects vary, and (4) What are the major concomitants of implementation and exposure? Discussions of counselor and administrator implementation of career education are somewhat abbreviated due to smaller sample sizes. The chapter concludes with a discussion of interrelationships among the informant groups' reported quality of implementation.

An Implementation/Process Model

A major focus of this study was the conceptualization of the implementation and process of career education as manifested in fifteen local projects. Conceptualizing and measuring the implementation/process were considered important for several reasons. First, we reasoned that unless the process of career education as defined by practitioners was carefully examined we might unknowingly have ended up evaluating what Charters and Jones (1973) term a "nonevent." The fact that some critics of career education were claiming no difference between "good" education and career education simply reinforced the importance of documenting the purported process (i.e., changes in resources, teacher behaviors, administrator attitudes, etc.) of career education.

Secondly, a review of the literature did not reveal anything like a blueprint of the career education process.* Although the theoretical foundation for career education was fashioned largely at the federal level, local practitioners appeared to be creating and initiating alternative approaches to implementation. It quickly became apparent that a "fidelity" perspective on the implementation of career education was inappropriate. We could not hope to assess implementation by describing the discrepancies between a project's implementation level and some standard since no standard existed. Rather, a "mutual adaptation" perspective (Berman and McLaughlin, 1975) was adopted which recognized the evolving character of career education and the diversity in concepts and approaches.

Thirdly, previous research highlighted a number of forces which operated to facilitate or impede the introduction of innovations into school systems. Career education was viewed as a broad-ranging innovation which would likely be affected by some of the same facilitating and impeding forces (called determinants) which have been the focus of earlier studies. We reasoned that if local projects were unsuccessful in delivering career education to students, fault might rest with project inattention to some of the generic determinants of implementation.

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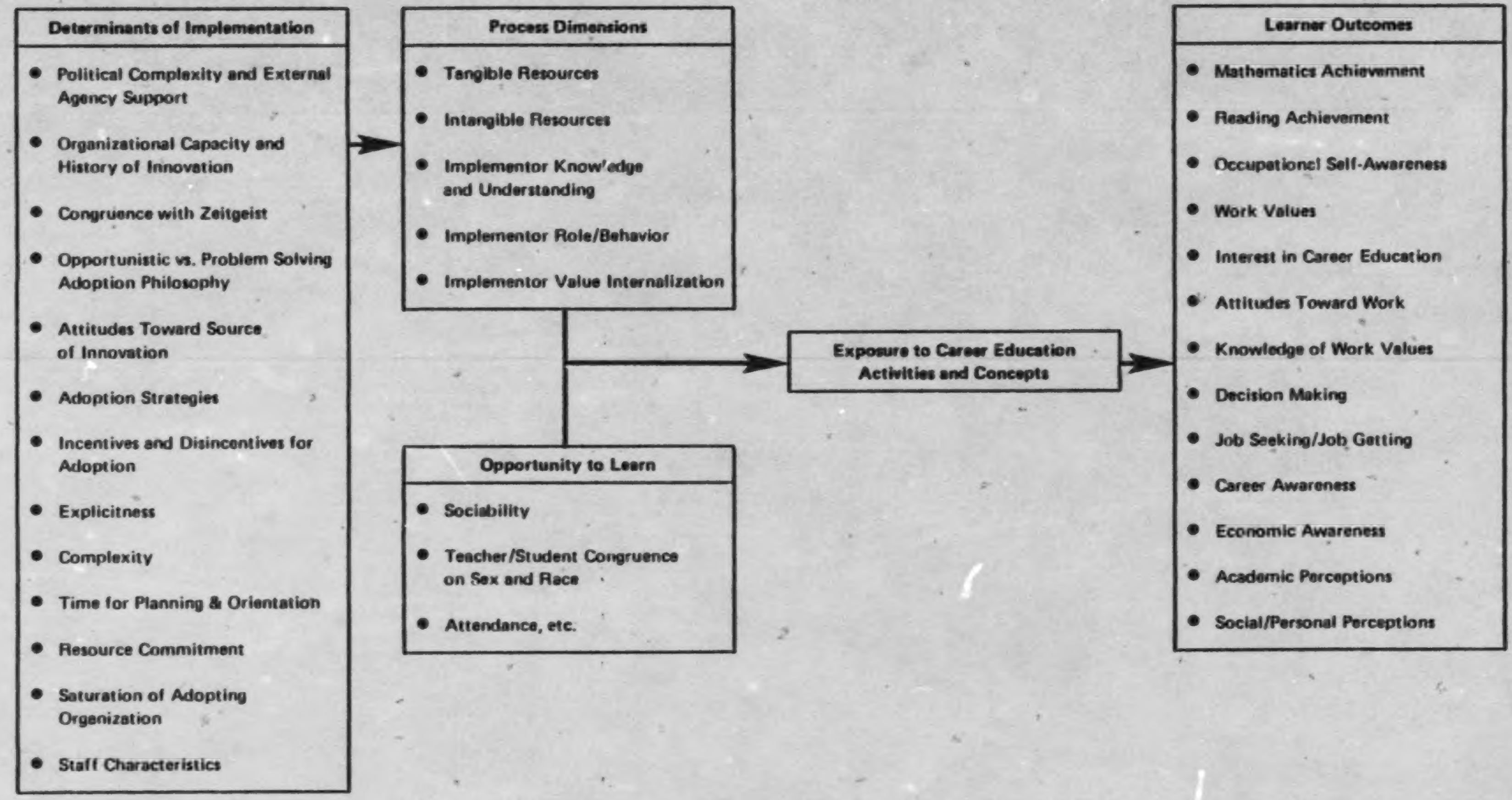
*The OCE monograph, A Primer for Career Education (Hoyt, 1977), does provide a more detailed guide than was available when this evaluation began; even it, however, does not address all the concerns discussed in the present study about the implementation of career education.

Last, we reasoned that projects are not themselves successful or unsuccessful, rather components, strategies or activities are differentially functional or dysfunctional. Observing that target students outperform nontarget students on some outcome construct (e.g., career awareness) tells us nothing about why target students benefited or what can be done to improve the projects. Knowledge that some ill-defined process is responsible for a desired outcome breeds false satisfaction and confidence among the foolish, and frustration among the wise. Replication and exportation of a project require careful specification of process dimensions responsible for desired outcomes. Specification of process-outcome relationships comprise the heart of a good evaluation, and only such specifications provide a sound foundation for policy action.

Figure 5.1 gives a schematic representation of the Implementation/Process Model. The model includes four components, three of which are featured in this chapter (student outcomes and the relationships between exposure to

Figure 5.1

A SCHEMATIC REPRESENTATION OF THE IMPLEMENTATION/PROCESS MODEL


Determinants of Implementation
Political Complexity and External Agency Support
Organizational Capacity and History of Innovation
Congruence with Zeitgeist
Opportunistic vs. Problem Solving Adoption Philosophy
Attitudes Toward Source of Innovation
Adoption Strategies
Incentives and Disincentives for Adoption
Explicitness
Complexity
Time for Planning & Orientation
Resource Commitment
Saturation of Adopting Organization
Staff Characteristics
Process Dimensions
Tangible Resources
Intangible Resources
Implementor Knowledge and Understanding
Implementor Role/Behavior
Implementor Value Internalization
Opportunity to Learn
Sociability
Teacher/Student Congruence on Sex and Race
Attendance, etc.
Exposure to Career Education Activities and Concepts
Learner Outcomes
Mathematics Achievement
Reading Achievement
Occupational Self-Awareness
Work Values
Interest in Career Education
Attitudes Toward Work
Knowledge of Work Values
Decision Making
Job Seeking/Job Getting
Career Awareness
Economic Awareness
Academic Perceptions
Social/Personal Perceptions

career education and these outcomes are treated in the next chapter). The Implementation/Process Model posits that a set of determinants operates to create variation in the way career education is implemented. Determinants are those factors which operate on any attempted educational innovation but may take on different forms depending upon specific characteristics of the innovation.

The process of career education manifests itself along essentially five dimensions: (1) changes in tangible resources, (2) changes in intangible resources, (3) changes in knowledge and understanding on the part of implementors (teachers, administrators, etc.), (4) changes in implementor role/behavior, and (5) value internalization (i.e., implementor commitment and attitudes toward the innovation). The level of change on these five dimensions is viewed as a product or outcome of the determinants and serves to define the "quality of implementation."

The quality of implementation interacts with "opportunity to learn" to determine level of exposure to treatment (e.g., career education) for individual students. In this evaluation, exposure was operationalized through student reported frequencies of participation in twenty-seven activities (twenty for grade five students). These activities fall into one of three categories based on the instructional setting in which they normally occur: (1) classroom activities (e.g., studying the interests needed for various careers, use media to learn about jobs, learn about work values, etc.); (2) linkage activities (e.g., attend a career fair, use the library to learn about careers, get personal help from people in the school in finding a paid job, etc.); and (3) extra school activities (e.g., go around with workers to learn what they do on their jobs, ask parents about what they do at work, etc.). Unlike curriculum innovations, career education does not presume some classroom based instructional package. Thus students within a classroom are not expected to necessarily receive identical treatment. For any of a wide range of reasons, including extroversion, likeability, or attendance, students can receive different amounts of exposure to treatment even when the quality of implementation is uniform within a classroom or building. Similarly, if "opportunity to learn" could be manipulated such that all children received equal opportunity, we would still expect the quality of implementation to vary from teacher to teacher.

Reliance on the individual student's level of exposure does not preclude the possibility that students in any given classroom or school may receive more or less exposure to career education than students in other classrooms or schools. To be sure, the differences among students within classrooms are likely to be smaller than differences among students across classrooms. A similar, though more attentuated, pattern is likely to hold at the building level as well. Within classroom similarities are likely to be more pronounced at the elementary school levels than at secondary levels, since students attend a greater number and variety of classrooms at the higher grades.

The "opportunity to learn" component is included in the model for the sake of conceptual clarity and completeness; it should be noted that the present study did not attempt to directly operationalize this construct. The costs involved in accurately measuring "opportunity to learn" are exorbitant and with the large sample of students involved in this study, it would have been an impossible task. Instead we simplified the model and assumed that the process dimensions directly determine students' "exposure to career education" which then contributes to determining learner outcome scores. We emphasize the absence of any measure of the "opportunity to learn" construct primarily because it may *partially* account for observed lack of congruence between student reported exposure and teacher reported implementation.

A Qualitative Examination of Thirteen Determinants of Implementation and Five Process Dimensions

This section brings together the results of onsite visits, extensive telephone discussions, and document reviews. The material to follow is more qualitative and impressionistic than that presented in the rest of the report. Although this information is not easily quantifiable, it is important to report this information for the reader to obtain a balanced view of the implementation/process of career education.

Determinants of Implementation

Many factors operated to facilitate or impede the implementation of career education in the fifteen projects studied in this evaluation. Although the comments that follow are, strictly speaking, only applicable to the fifteen projects under study, the evaluation team has considerable confidence (based upon experience in evaluating numerous other career education projects) that the observations reported below can be easily extended to the implementation of career education in general.

Political Complexity and External Agency Support- Extent to which different interest groups and governmental agencies must be involved in implementing an innovation and the extent to which cognizant Federal, state and local agencies and administrators express support and act in a supporting role. Also included is the status of relevant legislation, regulations and policy pronouncements at all governmental levels.

Career education is a politically complex innovation exercising influence not only on education but on business and labor, service organizations and clubs (e.g., Boy Scouts of America), parent groups, and legislative bodies. Litwak and Meyer (1966) have identified several dimensions which characterize efforts by bureaucracies to influence individuals and local communities and organizations. One of these dimensions, bureaucratic initiative, played a prominent role in facilitating implementation of career education within the fifteen projects.

OCE and other HEW units have demonstrated a high level of bureaucratic initiative in promoting career education. A complex of relationships and alliances have formed around career education and predominantly positive attitudes exist between local projects and OCE. It is evident that local project staff feel a camaraderie with OCE that is somewhat less evident in other direct funded Federal efforts. OCE has effectively employed face-to-face contacts between members of the bureaucracy and LEA, SEA, and community leaders, a technique which Litwak and Meyer suggest is a good indicant of high bureaucratic initiative. The Commissioner's National Conference on Career Education is another example of bureaucratic initiative which had an observable positive influence on the local projects. Finally, frequent and informal memos from the OCE director to local directors appeared to maintain a sense of alliance and bureaucratic support.*

Although the Federal role was largely a facilitating factor in implementing career education in the local projects, State day-to-day involvement and support were absent in most cases. Three projects (Workville, Awaresville, Studytown) belonged to Statewide consortia; States were much more active in these sites. To what extent the low level of involvement in the nonconsortia sites was due to direct OCE funding and monitoring, low SEA initiative, or adversary-based LEA-SEA relationships, is difficult to determine. In at least some cases project staff felt no requirement to interact with respective SEAs, and the copy of the grant application sent to the State's career education coordinator promoted little or no productive interaction. In other cases local personnel were much more enlightened regarding career education than were SEA personnel and, as a consequence, had little incentive to seek guidance or support. Overall, we must conclude that the LEA-SEA linkages were weak; nonetheless, perhaps because of the strong Federal initiative, we observed no deleterious effects on implementation traceable to limited SEA involvement.

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*We should note that these particular observations apply only to the fifteen projects we studied, and any generalizations to non-OCE funded efforts are tenuous.

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Local political support for career education varied considerably across sites. At least one project was successful in building a comprehensive network of cooperating businesses and community agencies; however, less mature projects had only limited connections with community agencies and businesses. Although fifteen months of observation do not afford a firm foundation for generalization, we suspect that career education projects evolve along a dimension defined by the extent to which they promote external linkages. Less mature career education efforts focus almost all their energies within the education system, building credibility and support. Once this important task is accomplished energies are redirected toward networking businesses and community agencies.

Organizational Capacity and History of Innovation - Extent to which the adopting agency has capacity to change; staff morale and esprit de corps; open communications channels; high level support for the innovation; previous successful experience with innovations; previous experience incorporating pilot or special project efforts into its ongoing operation.

Most of the fifteen sites can be characterized as "early adopters" (cf. Rogers and Shoemaker, 1971). Four sites have had ongoing career education programs since 1972, and only one site did not have some ongoing career education effort prior to the 1976-77 school year. Nine of the local superintendents evidenced strong support for career education through soliciting local funds for career education activities and actively participating in awareness campaigns. Surprisingly, there was little relationship between size of LEA and level of superintendent support. The highest levels of support were found in one of the largest and one of the smallest LEAs. Perhaps the best indicator of superintendent support is that seven of the nine sites seeking local monies successfully negotiated local funding for the 1977-78 school year.

Consistent with the observation that many sites are "early adopters" was the favorable attitude toward innovation found in twelve of the projects. Only three sites were viewed by the directors as bearish on innovation, and, not so surprisingly, in two of the three, superintendent support for career education was low to moderate. Four sites reported other major innovations underway (new reading program, implementation of state standards, instructional centers, and a new special education program) in addition to career education, although none of these were coordinated with career education activities. In general, the fifteen sites had climates supportive of innovation and superintendents who were highly supportive of career education. It is no coincidence that the most effective implementation, as will be seen later in this chapter, occurred in those sites with the most experience with change and the most positive attitudes toward innovation.

Morale of the project staff was unusually high in eleven of the fifteen projects. Although special project staffs are customarily zealous, most of the career education staffs were particularly committed and had a high level of esprit de corps. An undoubtedly important contribution to observed high morale was the fact that six project directors reported directly to the superintendent, and seven others reported to highly supportive assistant superintendents. In at least three cases, the project director reported "out of line" to the superintendent or assistant superintendent giving the projects special recognition and blessing.

Congruence with Zeitgeist - Extent to which the innovation is consistent with prevailing attitudes and social movements of both a national and parochial character.

Bureaucratic initiatives which are congruent with prevailing attitudes and social processes are more easily implemented than are bureaucratic initiatives which oppose such forces. At least at philosophical and conceptual levels, career education is aligned with reported needs and concerns of the American citizenry. In part, career education has been sustained by aligning itself with other powerful social forces, such as youth employment, the back to basics movement, and nationwide reaffirmation of the importance of work. As presently configured, career education purports to embody a generalized strategy of attack on some persistent social problems. Thus, from a national perspective, career education appears to be congruent with the zeitgeist and has not, as yet, provoked focused opposition from any powerful constituencies.

At the local level, career education appears to be quite consistent with prevailing attitudes and social forces with one interesting twist. In communities with large percentages of college bound students, career education is "sold" with a heavy basic skills emphasis. In higher SES communities, in particular, the "preparation for work" theme is subordinated to a theme which features career education as an effective vehicle for improving achievement in basic skills. In communities with smaller percentages of college bound students, the emphasis is more on career exploration and career preparation, although the basic skills outcome is by no means ignored. As will be seen later in this chapter, although sites may differ in what they choose to promote as goals of career education, there are few differences in the career education activities which are actually implemented at the classroom level. Apparently, variation in instructional philosophy and implementation does not follow necessarily from variation in intent and promotional literature.

Opportunistic vs. Problem Solving Adoption Philosophy - Extent to which the adopting agency is responding to the innovation from an opportunistic resource acquisition perspective or a problem solving perspective emanating from locally defined and articulated needs.

In seven sites the project director did not write the grant proposal, and in five of these much idea generation was conducted by external agencies or individuals. Although we might take this as evidence of an opportunistic resource acquisition perspective, such a conclusion is unwarranted, given that four of these five sites have made long term

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commitments and are continuing projects under either local or state support. Although few of the sites conducted formal needs assessment studies prior to proposal submission, there is considerable evidence of coordinated proposal planning.

Thirteen sites report continuing career education activities funded through a combination of local, state, and federal sources. One site reported CETA funding. Not surprisingly, the site with the lowest level of superintendent support is not continuing under local or state funding and has lost most of the initiative gained during 1976-77. Most of the thirteen sites which report continuing efforts are maintaining some form of project status.

Whether a "project" orientation is consistent with the avowed objective of most sites to implement career education district-wide is an issue which merits further investigation. Our observations suggest that projects are effective mechanisms for promoting awareness and for initial development activities, but the transition from awareness to implementation is not easily facilitated through projects. What is needed is some investigation of alternative mechanisms for promoting district-wide implementation of career education that do not rely on transient projects which, almost by definition, are difficult to institutionalize.

Attitudes Toward Source of Innovation - Attitudes of implementors toward the initiating agency or organization; attitudes toward the role of the initiating agency as proselytizer or enforcer; congruence between adopting agency and initiating agency perceptions of respective roles.

With few exceptions the projects viewed OCE's role as simply the provider of funds. Only two projects mentioned technical assistance as an OCE function, and only four projects mentioned OCE's monitoring responsibility. The fact that OCE was not considered as a source of technical assistance stems in part from the finding that only four projects were visited more than once by OCE staff. In general, the attitudes of project staff toward OCE monitors were highly positive. The projects without prior career education experience wanted more OCE involvement, and it is our belief that implementation would have been facilitated in these newer projects had more technical assistance been forthcoming.

Only three sites were satisfied with the grants process and the funding cycle. Several project directors reported that the protracted grant negotiations resulted in delays in implementation and that the one year funding cycle interfered with long range planning. One project director commented upon the conflict between the existing year-to-year funding plan and his aims of implementing district-wide career education. Of course it should be noted that this program was not set up by Congress to promote the implementation of career education; rather, these projects are funded to demonstrate the potential of career education.

Most sites whole-heartedly embraced the OE learner outcomes, although there were a number of State and local embellishments. Similarly, published OCE materials were frequently incorporated into local planning and project development. One specific instance of local responsiveness to OCE leadership was the fact that a majority of sites added "sex stereotyping" as a focus of project activity, although they were under no obligation to do so.

In general, local project staff expressed positive attitudes toward OCE. The absence of friction between OCE and the sites clearly facilitated implementation, although some of the newer sites could have benefitted by more intense OCE involvement during the initial stages of project implementation. A general observation is that large gatherings of project directors are poor substitutes for focused, onsite, technical assistance with scheduled follow-up. Several project directors observed, in retrospect, that early, focused technical assistance would have "helped tremendously." Such technical assistance was precluded, of course, simply by the lack of OCE resources.

Adoption Strategies - Ways in which the implementors (e.g. teachers) are made aware of the innovation and instructed in its essential features; extent to which implementors are involved in redefining emphases of the innovation and making modifications to enhance local suitability and implementor sense of ownership; inservice training (kinds and amounts).

All projects employed teacher, counselor, and administrator inservice workshops as the primary adoption strategy. Projects varied considerably in frequency and duration of inservice sessions and in topics covered in such sessions. By far the strongest aspect of the general adoption strategy employed by the projects was the awareness component. A later section of this chapter will highlight the finding that most target teachers, counselors, and building administrators were aware of career education and were conversant with its key themes.

A rather clear relationship was evident between the extent to which projects delivered inservice follow-up and the subsequent quality of implementation. This relationship emerged from onsite observation and was strongly confirmed by the process questionnaire data. Number of inservice hours was positively related to numbers and frequencies of career education activities engaged in by teachers, counselors, and building administrators. A related observation was that pacing and sequencing of inservice workshops throughout the year were an important consideration in facilitating classroom level implementation.

Most of the projects used a top-down adoption philosophy which provided little opportunity for practitioner involvement in shaping the local conception of career education. One potential reason for this adherence to a top-down adoption approach was that projects focused on maximizing "numbers of teachers inserviced" rather than maximizing intensity of inservice for individual teachers. Intensity of inservice and instrumental assistance have been found in other studies to be important determinants of implementation or use (Louis, 1977). There was some evidence that project personnel were under pressures (whether internally or externally imposed) to inservice large numbers of teachers in keeping with a district-wide implementation philosophy. Limited resources necessarily meant that many teachers received limited inservice rather than that a few teachers received extensive assistance. We must conclude that this emphasis on number rather than intensity of involvement adversely influenced implementation in many projects.

Incentives and Disincentives For Adoption - Type and level of incentives and disincentives to adopting agency, adopting units, and implementors including: money, publicity, professional recognition, and keeping up with the Joneses.

All fifteen projects enjoyed positive publicity, and, in most cases, project directors received professional recognition for their efforts. The political leverage that often comes with grant money was used effectively by a few project directors, but many more were unaware of how to convert financial initiative into wider awareness and higher quality implementation. For example, the leverage technique of using OCE money to obtain long term local or State support was not practiced by more than a slight majority of project directors.

At the practitioner level the incentives were commonplace and included: extra materials, release time, and compliance with high-level directives. In many sites participation in career education was voluntary so that involvement was intrinsically rather than extrinsically motivated. Perhaps the most creative incentives for teacher, counselor, and principal involvement were trips to other projects and to gatherings, such as the Commissioner's National Conference on Career Education. When the superintendent was publicly committed to career education, there appeared to be less use of tangible incentives. As one superintendent put it, "Implementing career education is part of their (teachers, counselors, and administrators) job."

Overall, there was little relationship between type of incentives or disincentives employed by a project and quality of implementation. What little relationship did exist could be explained by the superintendent's level of commitment to career education.

Explicitness - Extent to which the theoretical basis for the innovation is well articulated and the desired outcomes are well defined and understood; extent to which the process activities (who, what, where, when, how) and alternatives are systematically delineated.

The theoretical basis for career education has been well articulated and, for the most part, project personnel demonstrate a familiarity with the concepts and principles of career education. However, judging from the fifteen projects, mechanisms for translating theory into practice have not been very effective. Career education, as seen in the fifteen projects is a loose constellation of approaches without a coherent self-evident structure. It is a well documented finding that innovations which lack explicitness are difficult to implement. A majority of the fifteen projects studied in this evaluation suffered from "specification failure."

For the most part, the fifteen projects embraced all nine OCE learner outcomes (See Table 2.15). This wholesale adoption strategy may be in itself indicative of an unfocused, inexplicit nature of many project philosophies and activities.

Although some projects attempted conceptually to link specific process activities to specific learner outcomes, most of the linkages were tenuous, at best. There existed, at times, an almost mystical belief that somehow career education (in the abstract), if implemented, would result in a pervasive influence on all outcomes of interest. Project personnel were generally unable to catalog specific process activities or impose a conceptual framework on the processes. Discussions about process often devolved into platitudes far removed from daily instructional decisions faced by teachers, counselors, and building administrators.

If one factor stood out as an impediment to quality implementation, it was lack of process specification and attendant lack of delineated process-outcome relationships. If local project personnel are to be left with the task of translating theory into practice, there needs to be some mechanism to assist them with conceptualization and implementation. Even prior to developing a technical assistance mechanism, more effort needs to be expended on conceptualizing the process of career education at the building and classroom levels.

Variation in philosophy and approach is a healthy position to advocate in the early stages of a bureaucratic initiative, but explicitness and variation are not antithetical notions. The majority of projects lacked explicitness, and, as a result, the quality of implementation suffered. Lack of explicitness poses a troublesome long-range issue, in that it effectively forecloses opportunities to replicate successful strategies.

Complexity - Extent to which major adjustments in organization and role/behavior must be simultaneously implemented; number of people that must be involved in implementation; number of external agencies and the respective levels of involvement considered desirable.

The planning and implementation of a career education project fully consistent with the theoretical underpinnings of career education would be a complex endeavor indeed. This undertaking would require resocialization of actors ranging from teachers to business persons, involvement of diverse agencies not used to collaborating with one another, and alterations in fundamental beliefs toward education and work. Complex changes in teacher attitudes, roles, and behavior are not accomplished easily. Gross, et al., (1971) and Evans and Schiller (1974) found that altering teaching strategies and role relationships proved much more difficult than changing administrative procedures or curriculum materials, and it is just such changes in roles and relationships which are vital to the success of career education.

Fullan and Pomfret (1977) suggest that complexity affects explicitness, "That is, the greater the complexity, the more difficult it it to be explicit about the operational characteristics of the innovation" (p. 371). It seems possible that, due to the complexity of career education, the fifteen projects found it difficult to be explicit; however, the wholesale adoption of outcomes and a consequent lack of clarity regarding process-outcome relationships suggest that other of the determinants (e.g., time for planning and orientation) beyond simply the complexity of career education are involved in explaining specification failure.

Time for Planning and Orientation - Amount of time to hire and inservice both primary and secondary implementors, provisions for acquiring needed materials and facilities; and provisions for establishing necessary organizational linkages.

There existed considerable variability in "time for planning and orientation" across the fifteen projects. In five cases project directors reported the observation that too much was expected too fast. As might be anticipated, the projects with previous background in career education were able to start up quickly and, unlike many of the newer endeavors, suffered few initial implementation problems. Moreover, delays in the grant award process further impeded implementation, especially for the less experienced project directors.

Resource Commitment - Extent of dollars and in-kind contributions available for implementation; per pupil or per unit expenditure.

From a per-pupil expenditure perspective, career education is an extraordinarily inexpensive innovation. Average per-pupil expenditures rarely exceed fifty dollars and, in several cases, are less than ten dollars. When viewed in light of per-pupil expenditures for ESEA Title I, the cost of career education is almost inconsequential. Many Title I projects expend more than $400.00 per student (NIE, 1977) in the hopes of positively affecting a narrow set of learner outcomes. A natural question is how can career education be expected to affect not only basic skills, but also career awareness and career knowledge when ESEA Title I has been only modestly successful with four to twenty times the resourc available to most career education projects?* We are not prepared to answer this question in this evaluation, but we do think that observed treatment effects must be interpreted only after comparing the modest investment required to initiate a career education project with the resources available to other recent innovative programs with somewhat overlapping objectives.

Saturation of Adopting Organization - Extent to which an agency's units (e.g., schools) are involved in the innovation.

Nine sites report that 100% of their elementary schools' practitioners have been at least partially inserviced on career education concepts and practices. Similarly, ten sites report comparable saturation at the secondary level. We are inclined to interpret such reports as indicants of project emphasis on numbers, as opposed to an accurate reflection of quality of implementation. Most of the projects have made a philosophical commitment to breadth of coverage rather than intensity and follow-up. Such a commitment would have been more defensible had projects specifically proposed objectives dealing with teacher behaviors and awareness. The focus on learner outcomes, emphasized to varying degrees by most projects' proposals, seems somewhat inconsistent with the projects' operational commitment to reach as many teachers as possible.

Some project directors appeared to be caught in a dilemma. On the one hand, they were committed to LEA-wide implementation of career education with its attendant emphasis on inservicing large numbers of teachers, while, on the other hand, they recognized that consistent follow-up with a smaller number of teachers was the strategy most likely to affect learner outcomes. In keeping with earlier remarks, we believe that the implementation may not be well served by short-term projects of wide scope, and furthermore, project emphasis on breadth of implementation acts as an impediment to high quality implementation. OCE might consider discouraging emphasis on LEA-wide implementation in short-term projects and instead encourage more of a demonstration orientation (or implementation in depth rather than breadth) with careful attention to quality implementation.

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*In the fifteen projects, per pupil expenditures from project funds ranged from twenty to one hundred dollars.

Staff Characteristics - Demographic characteristics of implementors, including: age, sex, race, education level, past experiences, attitudes toward change, and staff morale.

Although we examine the effects of teacher, counselor, and building administrator characteristics on implementation later in this chapter, it is informative to consider briefly several characteristics of local project directors.

Five project directors had little or no project management experience prior to assuming management responsibilities on the career education project. Four other project directors had extensive project management experience. Only two of the project directors had no prior experience with career education. All project directors had had prior teaching experience, and ten also had prior building-level administrative experience. We observed a high coincidence of low quality implementation and project director inexperience, but given the large number of intervening factors, a direct causal relationship between the two variables is unlikely.

Process Dimensions

When an innovation is implemented in a school district, building, or classroom, something presumably gets changed. The sum total of these changes comprises the operating innovation and is assumed responsible for any observed changes in learner outcomes. The previous section discussed the factors which impinge upon the implementation of an innovation and determine the extensiveness of change. Here we are concerned with describing the career education process and briefly delineating, at a macro-level, the changes that are fostered through career education. Our model of the implementation and process of career education includes five dimensions along which career education can be described.*

Tangible Resources - Changes in facilities, materials, equipment, numbers of staff, diagnostic procedures, numbers of involved agencies, etc.

Career education, as implemented in the fifteen sites, does not require massive changes in tangible resources. Although the project staff at each site is a tangible resource, no new facilities or equipment normally is required to implement the programs. Career education centers at both the elementary and secondary levels represent the most frequently acquired tangible resource. The centers range from converted broom closets to elaborate classrooms and house various mixtures of locally developed and commercially available curriculum materials. The quality of locally developed materials ranges from poor to outstanding, with some of the latter category being competitive with the best of available commercial materials. The lower costs associated with locally developed materials make this an increasingly attractive means of acquiring tangible resources.

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*We should note that the determinants of implementation are conceptually rather than empirically linked to these process dimensions. Our earlier comments concerned the ways in which determinants were linked to a global assessment of quality of implementation. We turn now to a more refined analysis of implementation. This more refined conceptualization is employed extensively in subsequent sections of this chapter.

Intangible Resources - Changes in organizational alignments, linkages, staffing patterns, student groupings, availability of evaluation information and feedback networks, etc.

Except for occasionally observed "most favored status" being assigned to projects by superintendents, there were very few shifts in organizational alignments as a consequence of career education reported by project directors. Neither staffing patterns nor traditional inter-staff linkages were altered appreciably; similarly, except for occasional small group sessions formed explicitly for career education purposes, there were very few instances of altered student groupings. Based on reports by project directors on the substance of inservice, project staff focused upon resocializing teachers, counselors, and building administrators without appreciably changing traditional interaction patterns among these groups. Thus, inservice activities for teachers emphasized alternative instructional activities, without stressing, for example, major role changes or adjustments in the ways teachers and counselors interact.

Perhaps the most pervasive intangible resource included changes in interaction patterns between schools and the business-industry-labor community. In several projects (including Treksville, Middlesex, and Career City) these changes were dramatic.

Knowledge and Understanding - Changes in knowledge that implementors have about the innovation and their facility in manipulating key concepts.

A major component of staff inservice involved increasing teachers,' counselors,' and building administrators' understanding of career education concepts. We observed that teachers and counselors did know what career education was, how it differed from vocational education, and what learner outcomes could be expected from career education. In addition to strategies for curriculum development and counseling, most of the inservice programs we reviewed had a heavy dose of doctrine. For example, almost all of the inservice programs for elementary school teachers emphasized the importance of basic skills and how career education could make traditional education more relevant. The infusion concept was another dominant theme, as was involvement of business and industry.

Implementor Role/Behavior - Changes in what implementors (project staff, teachers, administrators, counselors, etc.) do with one another and with students.

Of the five process dimensions, change in role/behavior is most central to the success of career education. All projects focused considerable resources on resocializing teachers, counselors, and building administrators. As we noted earlier, much of the inservice activity dealt with changing behavior _within_ traditional role boundaries. Career education, as practiced in these fifteen projects, did not attempt massive role redefinition. No new roles were established, with the possible exception of building level career education coordinator.

While career education leaves the traditional roles and organizational structure intact, it promotes a thoroughgoing reexamination of the behaviors of each individual educator. Teachers are encouraged to examine the place of work in our society and to relate course content to the world of work whenever possible. As simple as this notion may seem, we are convinced that it is essentially foreign to many elementary and secondary teachers. Similarly, counselors are asked to reconsider the emphasis they give to college-bound students and to recognize their broader responsibilities.

Past research has documented that innovations requiring substantial changes in role/behavior are the most difficult to implement. If career education simply involved placing a teacher's aide in each classroom or purchasing additional equipment and materials, rapid implementation might be expected. When an attempt is made to resocialize an entire profession, progress will be slow and painful.

Implementor Value Internalization - Changes in self-reported and observed attitudes toward the innovation and its basic principles as well as commitment to its successful implementation.

Throughout the fifteen projects there was an observed commitment to career education on the part of the teachers, counselors, and building administrators. Whether a positive attitude toward career education is a cause or an effect of changed role/behavior is impossible to determine. We are inclined to believe that, whereas many teachers and counselors verbalize a commitment to the principles and objectives of career education, a much smaller number radically change their behavior; data presented in the following sections of this chapter show this clearly.

Student Reported Exposure to Career Education

During April and May 1977, target and nontarget students completed a questionnaire dealing with their frequency of exposure to selected career education-oriented activities. The activities were selected in consultation with local project staffs and OCE. This section examines four sources of variation in student reported exposure to career education: (1) target-nontarget differences, (2) grade-level differences, (3) project differences, and (4) differences associated with demographic characteristics. Rather late in the analysis phase of this study we discovered that student reported exposure to career education was correlated significantly with ethnicity. Within-as well as across-projects, black students consistently report more frequent exposure to career education activities than do white students. We are inclined to believe that this differences is due to overreporting by black students rather than true differences in exposure. In an effort to account for this overreporting response set we have analyzed the data separately for blacks and whites.

Target - Nontarget Differences

Tables 5.1 to 5.9 present the differences between fifth, eighth, and eleventh grade target and nontarget students' exposure to career education activities. Career education activities have been organized into three sets: classroom activities, linkage activities, and extra school activities. The tables give the point-biserial correlation between treatment-group membership (target-nontarget) and student reported frequency of exposure to each activity, and the F ratio corresponding to the difference between target and nontarget means. The respective means and standard deviations are also reported. A low number for the mean denotes higher exposure, with means around one or two indicating daily or weekly frequency, and means around four or five indicating once a year or never.*

The summary tables present the unique contribution that each activity set makes to discriminating between target and nontarget students and the common or joint contribution shared by the three activity sets. The F ratio and respective significance level are reported for each unique contribution (R^2). The "% of explained variance" column breaks the unique and common contributions into discrete units, making it easier to compare the relative importance of each activity set's contribution directly to the total explained variance. Throughout the report we also report adjusted R^2s.* The "power sample" column provides an estimate of the number of cases that would be required in a sample in order for the reported R^2 to be statistically significant at the .05 level. Treatment effects which are small and "fragile" require large sample sizes for the effect to be detected, whereas more potent effects require smaller samples. The "power samples" provide an indication of the required sample sizes if treatment effects of the types and magnitude of those presented in this report are to be detected in future studies.

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*These items were scores as follows: 1 = almost everyday; 2 = once a week; 3 = once or twice a month; 4 = less than once a month; 5 = never.

Table 5.1 presents the differences between target and nontarget fifth grade students' self reported exposure to career education activities. Consistent with expectations,

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*Adjusted R^2 statistic, "is adjusted for the number of independent variables in the equation and the number of cases. It is a more conservative estimate of the percent of variance explained, especially when the sample size is small. The logic of this measure is based on the following conceptual formula for R^2:

$$R^2 \text{ in the Population} = 1 - \frac{\text{error variance in Y in the population}}{\text{total variance in Y in the population.}}$$

The adjusted R^2 formula uses unbiased estimates of the error variance and the total variance of Y in the population. However, the resultant quantity (adjusted R^2) is biased. The formula used by SPSS is Adjusted $R^2 = R^2 - \frac{(k-1)}{(N-k)}(1-R^2)$ where k is the number of independent variables in the regression equation, N is the number of cases, and R^2 to the right of the equals sign is the unadjusted R^2. Adjusted R^2 may become negative or undefined when R^2 or the number of cases is small. If so, SPSS will print 0.0 as the adjusted R^2." Nie, et al., Statistical Package for the Social Sciences, 1975, p. 358.

TABLE 5.1
DIFFERENCES BETWEEN TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 5

Item Location	Brief Variable Description	r	F	Target N = 2527		Nontarget N = 640	
				X̄	SD	X̄	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.14	67.2**	3.01	1.47	3.55	1.57
S-5	2. Talk About Job Values	.12	44.9**	3.75	1.34	4.14	1.29
S-6	3. Study Interests Needed	.14	61.6**	3.57	1.31	4.03	1.25
S-9	4. Simulation	.01	.6	4.02	1.27	4.06	1.27
S-11	5. Basic Skills and Careers	.05	7.5**	2.90	1.46	3.08	1.54
S-14	6. Career Education Tests	.07	15.6**	3.86	1.06	4.05	1.17
S-18	7. Reduce Race/Sex Stereotyping	.10	31.2**	3.25	1.43	3.61	1.46
S-19	8. My Work Values	.09	23.8**	3.24	1.50	3.56	1.51
S-21	9. Job Getting Skills (NA)						
S-24	10. Aptitude Tests (NA)						
S-27	11. Career Decision Making (NA)						
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	−.02	.7	4.61	.88	4.57	1.00
S-3	2. Talk with Students	.09	27.3**	3.52	1.39	3.84	1.35
S-7	3. Talk After Field Trips	.05	9.5**	3.69	1.08	3.85	1.30
S-8	4. Use Library	.07	16.5**	3.26	1.33	3.05	1.37
S-22	5. Advice About Jobs (NA)						
S-23	6. Advice About Education (NA)						
S-25	7. Help in Getting Jobs (NA)						
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.06	10.8**	3.84	1.24	4.02	1.27
S-10	2. Go On Field Trips	.13	51.2**	3.91	.90	4.21	1.06
S-12	3. Listen to Workers	.04	4.8*	3.86	1.16	3.97	1.28
S-13	4. Listen to Other Parents	.02	.9	3.99	1.20	4.04	1.33
S-15	5. Take Home CE Material	.02	1.3	4.03	1.28	4.10	1.03
S-16	6. Listen to My Parents	.01	.6	2.14	1.46	2.19	1.49
S-17	7. Ask Parents About Jobs	.01	.5	2.54	1.47	2.58	1.56
S-20	8. Career Groups	.04	3.1	4.13	1.22	4.23	1.17
S-26	9. Work Study (NA)						

$*p < .05$
$**p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	8/3146	.04	16.4	.01	57%	479
Linkage (u)	4/3146	.01	7.9	.01	14%	1551
Extra School (u)	8/3146	.01	3.4	.01	14%	1910
Common Contribution		.01			14%	
Total R^2	20/3146	.07	11.8	.01	100%	368
Adjusted R^2		.06				

classroom activities are more discriminating at the fifth grade level than either linkage or extra-school activities. Those activities which effect the greatest differences involve the use of media in teaching about careers, discussions about job values and interests, discussions of race and sex sterotyping, and participation in career field trips. Overall, the activities account for seven percent of the variance which, under assumptions of equal Ns and normal distributions, means that seventy percent of the target group exceeds the mean of the nontarget group on a weighted composite of the activities. The findings, although not overwhelming, an clearly consistent with a conclusion that fifth grade target students are exposed to more career education-oriented activities than are nontarget students.

Whereas Table 5.1 presents differences for all target and nontarget students, Tables 5.2 and 5.3 examine differences for blacks and whites separately. The differences between Tables 5.2 and 5.3 illustrate the wisdom in analyzing black and white students separately. Although the overall pattern of differences between target and nontarget students is essentially similar for blacks and whites, black fifth grade students consistently report more exposure to career education activities than white fifth grade students. Stated more precisely, there is about the same distance between black target and nontarget students regression lines as there is between white target and nontarget students regression lines; however, the black students' regression lines are more

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TABLE 5.2
DIFFERENCES BETWEEN BLACK TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 5

Item Location	Brief Variable Description	r	F	Target N = 476		Nontarget N = 165	
				X̄	SD	X̄	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.09	4.9*	3.01	1.56	3.33	1.70
S-5	2. Talk About Job Values	.12	9.7**	3.51	1.45	3.92	1.43
S-6	3. Study Interests Needed	.21	29.9**	3.31	1.48	4.04	1.36
S-9	4. Simulation	.11	7.5**	3.63	1.44	3.99	1.32
S-11	5. Basic Skills and Careers	.01	0.1	2.63	1.58	2.67	1.61
S-14	6. Career Education Tests	.13	11.4**	3.60	1.26	3.99	1.28
S-18	7. Reduce Race/Sex Stereotyping	.09	5.0*	3.26	1.57	3.58	1.57
S-19	8. My Work Values	.12	9.8**	3.02	1.62	3.48	1.62
S-21	9. Job Getting Skills (NA)						
S-24	10. Aptitude Tests (NA)						
S-27	11. Career Decision Making (NA)						
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.02	.3	4.31	1.15	4.37	1.25
S-3	2. Talk with Students	.14	12.7**	3.27	1.49	3.75	1.40
S-7	3. Talk After Field Trips	.02	.3	3.35	1.27	3.42	1.51
S-8	4. Use Library	.15	15.5**	2.91	1.37	3.41	1.49
S-22	5. Advice About Jobs (NA)						
S-23	6. Advice About Education (NA)						
S-25	7. Help in Getting Jobs (NA)						
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.06	2.6	3.69	1.41	3.90	1.43
S-10	2. Go On Field Trips	.15	14.7**	3.73	1.11	4.13	1.24
S-12	3. Listen to Workers	.18	21.4**	3.42	1.37	4.01	1.40
S-13	4. Listen to Other Parents	.10	6.7**	3.67	1.45	4.01	1.38
S-15	5. Take Home CE Material	.12	9.2**	3.61	1.51	4.02	1.40
S-16	6. Listen to My Parents	.00	0.0	2.21	1.57	2.21	1.51
S-17	7. Ask Parents About Jobs	.00	0.0	2.49	1.57	2.49	1.57
S-20	8. Career Groups	.12	9.7**	3.68	1.46	4.09	1.31
S-26	9. Work Study (NA)						

*P < .05
**P < .01

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	8/622	.04	3.6	.01	31%	479
Linkage (u)	4/622	.02	3.6	.01	15%	760
Extra School (u)	8/622	.04	3.6	.01	31%	479
Common Contribution		.03			23%	
Total R^2	20/622	.13	4.6	.01	100%	196
Adjusted R^2		.09				

TABLE 5.3
DIFFERENCES BETWEEN WHITE TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 5

Item Location	Brief Variable Description	r	F	Target N = 1903		Nontarget N = 346	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.17	65.3**	2.99	1.44	3.68	1.49
S-5	2. Talk About Job Values	.11	31.9**	3.80	1.30	4.23	1.21
S-6	3. Study Interests Needed	.12	31.2**	3.63	1.26	4.04	1.21
S-9	4. Simulation	.00	0.0	4.13	1.20	4.13	1.23
S-11	5. Basic Skills and Careers	.08	15.2**	2.98	1.42	3.31	1.47
S-14	6. Career Education Tests	.08	12.6**	3.92	1.00	4.14	1.10
S-18	7. Reduce Race/Sex Stereotyping	.08	15.8**	3.32	1.40	3.55	1.43
S-19	8. My Work Values	.07	11.1**	3.29	1.46	3.58	1.46
S-21	9. Job Getting Skills (NA)						
S-24	10. Aptitude Tests (NA)						
S-27	11. Career Decision Making (NA)						
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.00	0.0	4.69	0.75	4.70	0.76
S-3	2. Talk with Students	.09	17.6**	3.57	1.35	3.90	1.32
S-7	3. Talk After Field Trips	.08	14.1**	3.79	1.00	4.02	1.16
S-8	4. Use Library	.07	10.1**	3.31	1.30	3.59	1.34
S-22	5. Advice About Jobs (NA)						
S-23	6. Advice About Education (NA)						
S-25	7. Help in Getting Jobs (NA)						
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.07	10.3**	3.88	1.18	4.10	1.15
S-10	2. Go On Field Trips	.13	35.5**	3.97	0.83	4.26	0.95
S-12	3. Listen to Workers	.01	0.5	3.98	1.07	4.02	1.17
S-13	4. Listen to Other Parents	.04	2.9	4.07	1.12	4.18	1.25
S-15	5. Take Home CE Material	.01	0.2	4.15	1.19	4.18	1.21
S-16	6. Listen to My Parents	.03	2.4	2.09	1.42	2.22	1.52
S-17	7. Ask Parents About Jobs	.03	2.3	2.53	1.44	2.66	1.56
S-20	8. Career Groups	.00	0.0	4.26	1.10	4.27	1.08
S-26	9. Work Study (NA)						

*$p < .05$
**$p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	8/1928	.04	10.5	.01	57%	479
Linkage (u)	4/1928	.00	1.6	NS	0%	5154
Extra School (u)	8/1928	.01	2.6	.01	14%	1910
Common Contribution		.02			29%	
Total R^2	20/1928	.07	8.4	.01	100%	368
Adjusted R^2		.06				

elevated (reflecting a higher level of self-reported exposure) than white students. We may interpret these differences in at least two ways; first, we might conclude that black students do, in fact, receive more exposure to career education activities or, second, that black students tend to overreport. The weight of the evidence (presented later) supports the latter interpretation.

Among eighth grade students (Tables 5.4, 5.5 and 5.6) the results are not as consistent in either direction or magnitude as those observed for fifth graders. When black and white students are considered we find ten of thirteen significant differences favoring nontarget students. For example, nontarget students report more exposure to discussions about job values, more relating of basic skills to careers, more discussion about work values and job getting skills, more career fair activities, and more advice about postsecondary school opportunities. Target students, on the other hand, report more career education tests, more aptitude tests, and more career education group activities. Given the mixture of effects, the summary statistics are not as directly meaningful as were the fifth grade results. In general, one must conclude either that the process of career education was not delivered effectively at the eighth grade level or the evaluation did not delineate the important activities engaged in by eighth graders. The findings for eleventh graders, presented later, render the latter explanation less plausible.

TABLE 5.4

DIFFERENCES BETWEEN TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

GRADE 8

Item Location	Brief Variable Description	r	F	Target N = 3405		Nontarget N = 381	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	–.02	1.1	3.65	1.38	3.57	1.46
S-5	2. Talk About Job Values	–.04	6.8**	4.25	1.06	4.10	1.19
S-6	3. Study Interests Needed	–.04	6.8**	3.94	1.14	3.76	1.25
S-9	4. Simulation	.00	0.0	4.38	1.00	4.39	1.12
S-11	5. Basic Skills and Careers	–.06	12.5**	3.56	1.32	3.00	1.42
S-14	6. Career Education Tests	.06	14.6**	4.17	.90	4.35	.83
S-18	7. Reduce Race/Sex Stereotyping	–.02	2.1	3.29	1.40	3.18	1.48
S-19	8. My Work Values	–.06	13.1**	3.69	1.29	3.44	1.43
S-21	9. Job Getting Skills	–.06	11.5**	3.57	1.26	3.32	1.37
S-24	10. Aptitude Tests	.08	22.9**	4.11	.91	4.36	.89
S-27	11. Career Decision Making	–.02	2.0	3.99	1.15	3.89	1.33
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.06	11.7**	4.77	.65	4.65	.78
S-3	2. Talk with Students	–.06	12.3**	3.89	1.19	3.66	1.35
S-7	3. Talk After Field Trips	–.04	4.6*	4.39	.93	4.28	1.10
S-8	4. Use Library	.00	0.0	3.95	1.11	3.96	1.17
S-22	5. Advice About Jobs	–.02	1.8	4.09	1.10	4.00	1.22
S-23	6. Advice About Education	–.04	4.6*	4.26	1.03	4.13	1.14
S-25	7. Help in Getting Jobs	–.02	1.6	4.55	.91	4.48	1.02
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	–.01	0.2	4.36	1.00	4.33	1.06
S-10	2. Go On Field Trips	.01	0.4	4.38	.83	4.41	.91
S-12	3. Listen to Workers	–.03	3.4	4.23	1.05	4.13	1.20
S-13	4. Listen to Other Parents	–.01	0.1	4.31	1.09	4.28	1.20
S-15	5. Take Home CE Material	–.05	9.0**	4.43	.98	4.27	1.10
S-16	6. Listen to My Parents	–.02	1.6	2.58	1.51	2.48	1.51
S-17	7. Ask Parents About Jobs	.01	0.2	2.97	1.45	3.01	1.49
S-20	8. Career Groups	.05	9.3**	4.53	.95	4.68	.81
S-26	9. Work Study	.01	0.3	4.52	.93	4.55	.93

*$p < .05$
**$p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/3760	.02	7.0	.01	40%	1067
Linkage (u)	7/3760	.01	5.4	.01	20%	1838
Extra School (u)	9/3760	.01	4.2	.01	20%	1991
Common Contribution		.01			20%	
Total R^2	27/3760	.05	7.3	.01	100%	590
Adjusted R^2		.03				

Tables 5.5 and 5.6 present eighth grade target and nontarget differences separately for blacks and whites. Again we observed a marked tendency for black students, whether target or nontarget, to report more exposure to career education activities than white students. However, unlike the pattern of black-white diffences among fifth graders, the eighth grade target-nontarget differences are not consistent for black and white students. Four of five significant differences for black students favor targeted students, while only three of nine differences among white students favor target students.

Among eleventh grade students (Table 5.7) all eight significant differences favor target students. Target students report more exposure to use of media, simulations, discussions about job getting skills, career facts, use of library to learn about careers, field trips, listening to workers describe their jobs, and career education group activities. Overall, the activities account for four percent of the variance, with extra school activities accounting for fifty percent of the explained variance. Among fifth graders we noted that classroom activities dominated; among eleventh graders, however, extra school activities are most important in discriminating between target and nontarget students.

Tables 5.8 and 5.9 present target-nontarget differences for black and white students respectively. In general, both the direction and magnitude of target-nontarget differences

TABLE 5.5
DIFFERENCES BETWEEN BLACK TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 8

Item Location	Brief Variable Description	r	F	Target N = 431		Nontarget N = 76	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.04	0.7	3.27	1.61	3.45	1.73
S-5	2. Talk About Job Values	–.02	0.1	3.90	1.38	3.84	1.37
S-6	3. Study Interests Needed	.01	0.0	3.65	1.35	3.69	1.43
S-9	4. Simulation	.00	0.0	3.90	1.35	3.91	1.49
S-11	5. Basic Skills and Careers	.00	0.0	2.91	1.54	2.93	1.60
S-14	6. Career Education Tests	.17	14.7*	3.87	1.20	4.44	0.89
S-18	7. Reduce Race/Sex Stereotyping	–.06	1.9	3.07	1.59	2.79	1.55
S-19	8. My Work Values	.03	0.5	3.31	1.52	3.17	1.64
S-21	9. Job Getting Skills	–.05	1.3	2.98	1.45	2.76	1.34
S-24	10. Aptitude Tests	.12	6.5*	3.82	1.25	4.23	0.98
S-27	11. Career Decision Making	.00	0.0	3.33	1.46	3.33	1.67
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.00	0.0	4.56	0.91	4.57	0.98
S-3	2. Talk with Students	.02	0.1	3.46	1.46	3.53	1.41
S-7	3. Talk After Field Trips	.03	0.3	3.93	1.27	4.03	1.43
S-8	4. Use Library	.10	5.3*	3.58	1.37	3.99	1.36
S-22	5. Advice About Jobs	.08	2.9	3.54	1.42	3.86	1.41
S-23	6. Advice About Education	.01	0.1	3.75	1.35	3.79	1.44
S-25	7. Help in Getting Jobs	.06	1.5	4.10	1.27	4.31	1.27
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.02	0.3	4.15	1.21	4.23	1.14
S-10	2. Go On Field Trips	.04	0.9	4.05	1.10	4.18	1.13
S-12	3. Listen to Workers	.02	0.2	3.71	1.41	3.63	1.49
S-13	4. Listen to Other Parents	.08	3.3	3.79	1.46	4.12	1.37
S-15	5. Take Home CE Material	.04	0.9	3.95	1.33	4.11	1.19
S-16	6. Listen to My Parents	–.11	5.6*	2.56	1.60	2.08	1.45
S-17	7. Ask Parents About Jobs	.03	0.3	2.80	1.57	2.92	1.62
S-20	8. Career Groups	.16	11.8**	4.11	1.27	4.65	0.91
S-26	9. Work Study	.08	3.0	4.18	1.23	4.46	1.10

*$P < .05$
**$P < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/479	.04	2.0	.05	36%	537
Linkage (u)	7/479	.02	1.5	NS	18%	924
Extra School (u)	9/479	.03	1.8	.05	28%	669
Common Contribution		.02			18%	
Total R^2	27/479	.11	2.2	.01	100%	254
Adjusted R^2		.04	--			

TABLE 5.6
DIFFERENCES BETWEEN WHITE TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 8

Item Location	Brief Variable Description	r	F	Target N = 2749		Nontarget N = 215	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	–.01	0.3	3.70	1.33	3.65	1.39
S-5	2. Talk About Job Values	–.03	2.5	4.32	0.99	4.20	1.13
S-6	3. Study Interests Needed	–.04	4.3*	3.99	1.10	3.82	1.23
S-9	4. Simulation	.02	1.4	4.46	0.91	4.53	0.94
S-11	5. Basic Skills and Careers	–.05	6.7**	3.66	1.26	3.42	1.35
S-14	6. Career Education Tests	.06	10.4**	4.21	0.82	4.40	0.78
S-18	7. Reduce Race/Sex Stereotyping	–.00	0.0	3.30	1.37	3.29	1.47
S-19	8. My Work Values	–.04	4.4*	3.75	1.24	3.56	1.37
S-21	9. Job Getting Skills	–.03	1.8	3.65	1.20	3.53	1.37
S-24	10. Aptitude Tests	.07	13.9**	4.15	0.83	4.38	0.86
S-27	11. Career Decision Making	–.01	0.1	4.09	1.06	4.06	1.20
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.02	0.7	4.81	0.57	4.78	0.53
S-3	2. Talk with Students	–.04	4.5*	3.95	1.14	3.78	1.32
S-7	3. Talk After Field Trips	–.03	2.5	4.47	0.83	4.37	0.91
S-8	4. Use Library	.00	0.0	3.99	1.05	3.99	1.12
S-22	5. Advice About Jobs	–.04	4.3*	4.18	1.01	4.02	1.17
S-23	6. Advice About Education	–.01	0.6	4.33	0.95	4.28	1.05
S-25	7. Help in Getting Jobs	–.02	1.1	4.63	0.80	4.56	0.90
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.01	0.1	4.40	0.95	4.43	0.95
S-10	2. Go On Field Trips	–.00	0.1	4.44	0.75	4.43	0.89
S-12	3. Listen to Workers	.01	0.2	4.32	0.96	4.35	0.97
S-13	4. Listen to Other Parents	–.01	0.2	4.40	0.99	4.37	1.13
S-15	5. Take Home CE Material	–.05	6.0*	4.50	0.89	4.35	1.04
S-16	6. Listen to My Parents	.01	0.3	2.56	1.49	2.62	1.54
S-17	7. Ask Parents About Jobs	–.02	0.8	2.99	1.43	2.98	1.49
S-20	8. Career Groups	.04	5.6*	4.60	0.86	4.75	0.73
S-26	9. Work Study	.01	0.5	4.58	0.86	4.62	.079

*$p < .05$
**$p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/2936	.02	5.6	.01	50%	132
Linkage (u)	7/2936	.01	4.4	.01	25%	1838
Extra School (u)	9/2936	.01	3.4	.01	25%	1991
Common Contribution		.00				
Total R^2	27/2936	.04	4.5	.01	100%	699
Adjusted R^2		.02				

TABLE 5.7

DIFFERENCES BETWEEN TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

GRADE 11

Item Location	Brief Variable Description	r	F	Target N = 2213		Nontarget N = 296	
				X̄	SD	X̄	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.05	6.6*	3.73	1.35	3.94	1.20
S-5	2. Talk About Job Values	.03	1.9	3.88	1.19	3.99	1.21
S-6	3. Study Interests Needed	.03	1.7	3.59	1.21	3.65	1.16
S-9	4. Simulation	.06	9.4**	4.30	1.12	4.51	0.94
S-11	5. Basic Skills and Careers	−.02	0.6	3.75	1.24	3.69	1.25
S-14	6. Career Education Tests	.03	2.6	4.11	0.89	4.20	0.85
S-18	7. Reduce Race/Sex Stereotyping	.02	1.4	3.03	1.36	3.14	1.32
S-19	8. My Work Values	−.02	1.4	3.15	1.31	3.07	1.30
S-21	9. Job Getting Skills	.06	7.3**	3.07	1.25	3.29	1.24
S-24	10. Aptitude Tests	.03	2.0	3.98	0.89	4.06	0.85
S-27	11. Career Decision Making	.02	0.8	3.65	1.22	3.72	1.25
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.06	10.5**	4.56	0.74	4.71	0.61
S-3	2. Talk with Students	.01	0.4	3.31	1.29	3.26	1.28
S-7	3. Talk After Field Trips	.04	3.8	4.34	0.97	4.46	0.89
S-8	4. Use Library	.07	11.3**	3.75	1.12	3.99	1.04
S-22	5. Advice About Jobs	.01	0.3	3.52	1.15	3.56	1.18
S-23	6. Advice About Education	.02	1.1	3.66	1.13	3.74	1.45
S-25	7. Help in Getting Jobs	.02	0.9	4.21	1.08	4.28	1.05
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.03	2.6	4.33	1.01	4.43	0.93
S-10	2. Go On Field Trips	.08	17.5**	4.33	0.87	4.56	0.79
S-12	3. Listen to Workers	.05	5.2*	3.97	1.13	4.13	1.03
S-13	4. Listen to Other Parents	.03	1.8	4.17	1.17	4.27	1.13
S-15	5. Take Home CE Material	.04	3.6	4.22	1.02	4.34	0.97
S-16	6. Listen to My Parents	.04	3.0	2.63	1.48	2.79	1.48
S-17	7. Ask Parents About Jobs	.03	2.2	3.06	1.39	3.19	1.38
S-20	8. Career Groups	.07	12.0**	4.47	0.98	4.68	0.82
S-26	9. Work Study	−.03	2.8	4.32	1.21	4.19	1.45

*P $<$.05
**P $<$.01

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/2481	.01	2.3	.01	25%	2127
Linkage (u)	7/2481	.00	1.8	NS	0%	3662
Extra School (u)	9/2481	.02	5.6	.01	50%	1000
Common Contribution		.01			25%	
Total R^2	27/2481	.04	3.8	.01	100%	738
Adjusted R^2		.03				

TABLE 5.8
DIFFERNECES BETWEEN BLACK TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 11

Item Location	Brief Variable Description	r	F	Target N = 397		Nontarget N = 33	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.13	6.9**	3.19	1.60	3.94	1.27
S-5	2. Talk About Job Values	.06	1.5	3.55	1.35	3.85	1.31
S-6	3. Study Interests Needed	.05	1.0	3.14	1.36	3.39	1.20
S-9	4. Simulation	.10	4.2*	3.76	1.40	4.27	1.26
S-11	5. Basic Skills and Careers	–.05	0.9	3.34	1.44	3.09	1.44
S-14	6. Career Education Tests	.06	1.5	3.84	1.12	4.09	.098
S-18	7. Reduce Race/Sex Stereotyping	.03	0.4	2.68	1.43	2.84	1.42
S-19	8. My Work Values	–.04	0.7	2.73	1.42	2.52	1.30
S-21	9. Job Getting Skills	.04	0.8	2.54	1.34	2.77	1.19
S-24	10. Aptitude Tests	.06	1.5	3.77	1.12	4.03	0.94
S-27	11. Career Decision Making	–.05	1.2	3.12	1.39	2.83	1.36
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.11	5.5*	4.28	0.97	4.68	0.73
S-3	2. Talk with Students	–.06	1.5	3.04	1.40	2.74	1.44
S-7	3. Talk After Field Trips	.07	1.8	3.97	1.26	4.27	1.01
S-8	4. Use Library	.07	1.9	3.29	1.29	3.61	1.12
S-22	5. Advice About Jobs	.01	0.1	3.07	1.34	3.00	1.34
S-23	6. Advice About Education	–.00	0.0	3.33	1.33	3.31	1.28
S-25	7. Help in Getting Jobs	–.06	1.3	3.63	1.32	3.34	1.32
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.04	0.8	4.14	1.16	4.32	1.12
S-10	2. Go On Field Trips	.12	6.5*	4.04	1.13	4.55	0.75
S-12	3. Listen to Workers	.08	3.3	3.49	1.36	3.94	0.95
S-13	4. Listen to Other Parents	.02	0.1	3.66	1.43	3.75	1.32
S-15	5. Take Home CE Material	.01	0.0	3.85	1.25	3.88	1.22
S-16	6. Listen to My Parents	.04	0.5	2.54	1.53	2.75	1.61
S-17	7. Ask Parents About Jobs	.03	0.3	3.00	1.50	3.15	1.39
S-20	8. Career Groups	.11	5.7*	4.15	1.19	4.65	0.92
S-26	9. Work Study	–.10	4.4*	3.93	1.41	3.37	1.67

*p < .05
**p < .01

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/402	.05	2.1	.05	42%	431
Linkage (u)	7/402	.02	1.4	NS	16%	924
Extra School (u)	9/402	.05	2.6	.01	42%	404
Common Contribution		.00			0%	
Total R^2	27/402	.12	2.0	.01	100%	233
Adjusted R^2		.05				

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TABLE 5.9
DIFFERENCES BETWEEN WHITE TARGET AND NONTARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES
GRADE 11

Item Location	Brief Variable Description	r	F	Target N = 1726		Nontarget N = 216	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.01	0.4	3.85	1.24	3.91	1.23
S-5	2. Talk About Job Values	.03	1.4	3.95	1.14	4.05	1.18
S-6	3. Study Interests Needed	.02	0.7	3.64	1.15	3.71	1.16
S-9	4. Simulation	.04	2.4	4.42	1.01	4.53	0.89
S-11	5. Basic Skills and Careers	–.04	2.4	3.85	1.16	3.72	1.20
S-14	6. Career Education Tests	.02	1.0	4.18	0.80	[illegible]	0.79
S-18	7. Reduce Race/Sex Stereotyping	.01	0.1	3.10	1.32	3.14	1.31
S-19	8. My Work Values	–.03	1.8	3.24	1.27	3.11	1.31
S-21	9. Job Getting Skills	.05	4.3*	3.18	1.19	3.37	1.23
S-24	10. Aptitude Tests	.00	0.0	4.03	0.82	4.03	0.83
S-27	11. Career Decision Making	.02	0.5	3.77	1.13	3.84	1.20
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.05	5.3*	4.63	0.64	4.74	0.59
S-3	2. Talk with Students	–.01	0.1	3.35	1.26	3.32	1.27
S-7	3. Talk After Field Trips	.03	1.4	4.43	0.87	4.50	0.84
S-8	4. Use Library	.05	5.3*	3.85	1.05	4.02	1.03
S-22	5. Advice About Jobs	.02	0.5	3.61	1.08	3.67	1.11
S-23	6. Advice About Education	.01	0.1	3.74	1.06	3.77	1.13
S-25	7. Help in Getting Jobs	.02	0.9	4.35	0.96	4.42	0.95
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.03	1.3	4.37	0.97	4.45	0.90
S-10	2. Go On Field Trips	.06	7.1**	4.40	0.77	4.55	0.78
S-12	3. Listen to Workers	.04	2.6	4.09	1.02	4.21	1.00
S-13	4. Listen to Other Parents	.02	1.0	4.29	1.06	4.37	1.08
S-15	5. Take Home CE Material	.04	2.6	4.31	0.93	4.41	0.89
S-16	6. Listen to My Parents	.03	1.7	2.63	1.46	2.77	1.48
S-17	7. Ask Parents About Jobs	.01	0.4	3.05	1.37	3.11	1.38
S-20	8. Career Groups	.05	5.2*	4.54	0.91	4.69	0.80
S-26	9. Work Study	–.03	1.7	4.42	1.13	4.31	1.41

*$p < .05$
**$p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/1914	.02	4.0	.01	50%	132
Linkage (u)	7/1914	.01	3.2	.01	25%	1838
Extra School (u)	9/1914	.01	2.5	.01	25%	1991
Common Contribution		.00			0%	
Total R^2	27/1914	.04	3.3	.01	100%	899
Adjusted R^2		.02				

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are consistent for black and white eleventh graders. The majority of contrasts for black and white students favor target students although the smaller sample sizes for black students results in reduced power.

At the fifth and eleventh grades, there exists a clear pattern of differential exposure to career education which is consistent with observed instructional emphasis at the two grade levels: we expected to find more exposure to classroom-based activities among fifth graders and more exposure to extra school activities among eleventh graders. The magnitude of target-nontarget differences in exposure are not overwhelming, but given the "numbers" oriented adoption strategy employed by most projects, it is encouraging to find any process differences manifested at the student level. In contrast, eighth grade findings reflect no consistent pattern of differential exposure favoring target students. The results for black students slightly favor target students, but among white students the advantage goes overwhelmingly to nontarget students. Several possible explanations for these discrepancies between fifth and eleventh grade results and the eighth grade results are explained later in a section on teacher reported implementation.

Grade Level Variation

Tables 5.10 - 5.15 systematize our earlier comments about grade to grade differences. The general question addressed by these tables is "how does target students' exposure to career education vary with grade level?" In each set of tables, a negative correlation favors the higher grades, i.e., students in the higher grade level report more frequent exposure to the activity. Again in this section we follow the practice of presenting results undifferentiated as to race, and then present separate tables for black and white students.

Differences between fifth and eighth grade target students' reported exposure to career education activities differ dramatically depending upon whether white students' or black students' reports are examined. If the combined results of Table 5.10 are used to evaluate differences between fifth and eighth grade target students' exposure, then one would conclude that fifth graders report more exposure than eighth graders. Examination of Tables 5.11 and 5.12 shows, however, that the relationship between grade level and self-reported exposure to career education activities is conditioned by whether the reporters are black or white. More precisely, there is an interaction effect. The vast majority of differences between black fifth and eighth grade target students favors the eighth graders, whereas just the opposite relationship holds for white students. Although the direction of the differences are opposite for black and white students, we should note that the magnitude of these differences is much larger among white students. Given what we believe to be a tendency for black students to overreport, we must conclude that fifth grade target students perceive a higher level of exposure to career education activities than do eighth grade target students.

TABLE 5.10
DIFFERENCES BETWEEN FIFTH AND EIGHTH GRADE TARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

Item Location	Brief Variable Description	r	F	Grade 5 N = 2228		Grade 8 N = 2783	
				X̄	SD	X̄	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.12	79.2**	2.78	1.58	3.20	1.75
S-5	2. Talk About Job Values	.08	17.3**	3.46	1.60	3.66	1.76
S-6	3. Study Interests Needed	.03	3.9*	3.30	1.53	3.39	1.71
S-9	4. Simulation	.00	0.0	3.73	1.61	3.73	1.80
S-11	5. Basic Skills and Careers	.10	46.8**	2.64	1.57	2.96	1.74
S-14	6. Career Education Tests	.01	0.3	3.54	1.40	3.57	1.69
S-18	7. Reduce Race/Sex Stereotyping	–.05	15.1**	2.93	1.64	2.74	1.74
S-19	8. My Work Values	.05	12.10**	2.94	1.67	3.12	1.76
S-21	9. Job Getting Skills (NA)						
S-24	10. Aptitude Tests (NA)						
S-27	11. Career Decision Making (NA)						
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.04	7.8**	4.33	1.40	4.20	1.67
S-3	2. Talk with Students	.04	8.6**	3.24	1.59	3.38	1.71
S-7	3. Talk After Field Trips	.12	67.9**	3.43	1.38	3.80	1.73
S-8	4. Use Library	.12	75.4**	2.95	1.50	3.38	1.69
S-22	5. Advice About Jobs (NA)						
S-23	6. Advice About Education (NA)						
S-25	7. Help in Getting Jobs (NA)						
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.07	27.2**	3.56	1.52	3.80	1.72
S-10	2. Go On Field Trips	.03	3.5	3.61	1.34	3.70	1.76
S-12	3. Listen to Workers	.02	1.2	3.54	1.49	3.59	1.79
S-13	4. Listen to Other Parents	–.02	3.0	3.68	1.54	3.59	1.88
S-15	5. Take Home CE Material	.00	0.0	3.67	1.61	3.71	1.84
S-16	6. Listen to My Parents	.05	14.5**	1.96	1.50	2.13	1.66
S-17	7. Ask Parents About Jobs	.03	5.6*	2.34	1.57	2.46	1.71
S-20	8. Career Groups	.15	111.7**	3.28	1.96	3.84	1.83
S-26	9. Work Study (NA)						

*$p < .05$
**$p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	8/4990	.03	21.3	.01	25%	638
Linkage (u)	4/4990	.05	70.9	.01	42%	1497
Extra School (u)	8/4990	.04	28.4	.01	33%	479
Common Contribution		.01			8%	
Total R^2	20/4990	.12	34.0	.01	100%	213
Adjusted R^2		.12				

TABLE 5.11
DIFFERENCES BETWEEN BLACK FIFTH AND EIGHTH GRADE TARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

Item Location	Brief Variable Description	r	F	Grade 5 N = 403		Grade 8 N = 423	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.00	0.0	2.97	1.64	2.99	1.83
S-5	2. Talk About Job Values	–.01	0.1	3.42	1.53	3.38	1.85
S-6	3. Study Interests Needed	–.01	0.1	3.21	1.58	3.17	1.77
S-9	4. Simulation	–.09	2.4	3.53	1.57	3.35	1.86
S-11	5. Basic Skills and Careers	–.02	0.4	2.55	1.63	2.47	1.75
S-14	6. Career Education Tests	–.07	3.7	3.43	1.41	3.21	1.83
S-18	7. Reduce Race/Sex Stereotyping	–.15	18.6**	3.02	1.65	2.50	1.86
S-19	8. My Work Values	–.04	1.5	2.94	1.68	2.78	1.86
S-21	9. Job Getting Skills (NA)						
S-24	10. Aptitude Tests (NA)						
S-27	11. Career Decision Making (NA)						
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.04	1.4	4.22	1.33	4.09	1.66
S-3	2. Talk with Students	–.03	0.1	3.21	1.58	3.09	1.77
S-7	3. Talk After Field Trips	.03	0.8	3.31	1.36	3.41	1.79
S-8	4. Use Library	.07	4.5*	2.82	1.42	3.06	1.79
S-22	5. Advice About Jobs (NA)						
S-23	6. Advice About Education (NA)						
S-25	7. Help in Getting Jobs (NA)						
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.04	1.0	3.56	1.50	3.68	1.76
S-10	2. Go On Field Trips	–.06	2.9	3.56	1.31	3.40	1.79
S-12	3. Listen to Workers	–.05	2.1	3.25	1.49	3.08	1.89
S-13	4. Listen to Other Parents	–.13	13.3**	3.53	1.58	3.08	1.97
S-15	5. Take Home CE Material	–.08	4.8*	3.46	1.63	3.19	1.95
S-16	6. Listen to My Parents	–.02	0.1	2.12	1.61	2.07	1.75
S-17	7. Ask Parents About Jobs	–.03	0.5	2.42	1.62	2.33	1.77
S-20	8. Career Groups	.01	0.1	3.38	1.75	3.44	1.94
S-26	9. Work Study (NA)						

$^{*}p < .05$
$^{**}p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	8/805	.03	3.3	.01	33%	637
Linkage (u)	4/805	.03	6.6	.01	33%	519
Extra School (u)	8/805	.03	3.3	.01	33%	637
Common Contribution		.00				
Total R^2	20/805	.08	3.5	.01	100%	338
Adjusted R^2		.05	-			

TABLE 5.12
DIFFERENCES BETWEEN WHITE FIFTH AND EIGHTH GRADE TARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

Item Location	Brief Variable Description	r	F	Grade 5 N = 1622		Grade 8 N = 2019	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.21	169.9**	2.83	1.47	3.48	1.52
S-5	2. Talk About Job Values	.14	73.6**	3.61	1.47	4.02	1.42
S-6	3. Study Interests Needed	.09	29.9**	3.44	1.40	3.70	1.44
S-9	4. Simulation	.06	14.4**	3.95	1.43	4.13	1.45
S-11	5. Basic Skills and Careers	.16	101.3**	2.79	1.49	3.30	1.[illegible]5
S-14	6. Career Education Tests	.08	22.9**	2.71	1.24	3.91	1.36
S-18	7. Reduce Race/Sex Stereotyping	–.00	0.1	3.01	1.56	2.99	1.58
S-19	8. My Work Values	.11	47.6**	3.06	1.59	3.42	1.55
S-21	9. Job Getting Skills (NA)						
S-24	10. Aptitude Tests (NA)						
S-27	11. Career Decision Making (NA)						
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	.00	0.2	4.55	1.09	4.57	1.21
S-3	2. Talk with Students	.11	47.6**	3.37	1.48	3.71	1.44
S-7	3. Talk After Field Trips	.22	176.6**	3.62	1.19	4.19	1.36
S-8	4. Use Library	.20	152.6**	3.14	1.40	3.72	1.40
S-22	5. Advice About Jobs (NA)						
S-23	6. Advice About Education (NA)						
S-25	7. Help in Getting Jobs (NA)						
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.16	93.7**	3.71	1.37	4.15	1.37
S-10	2. Go On Field Trips	.11	47.3**	3.79	1.13	4.08	1.42
S-12	3. Listen to Workers	.09	28.2**	3.76	1.32	4.01	1.46
S-13	4. Listen to Other Parents	.05	10.5**	3.86	1.36	4.02	1.55
S-15	5. Take Home CE Material	.07	16.4**	3.92	1.44	4.12	1.51
S-16	6. Listen to My Parents	.10	38.8**	1.97	1.44	2.29	1.56
S-17	7. Ask Parents About Jobs	.08	26.4**	2.41	1.50	2.67	1.60
S-20	8. Career Groups	–.25	241.4**	3.37	1.95	2.25	1.47
S-26	9. Work Study (NA)						

*P < .05
**P < .01

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	8/3620	.03	14.6	.01	18%	638
Linkage (u)	4/3620	.05	48.7	.01	29%	314
Extra School (u)	8/3620	.05	6.5	.01	29%	384
Common Contribution		.04			24%	
Total R^2	20/3620	.17	33.1	.01	100%	149
Adjusted R^2		.17				

Differences between eighth and eleventh grade target students follow an interesting pattern that does not overwhelmingly favor either grade level (see Tables 5.13, 5.14, 5.15). For the combined black and white students' results, presented in Table 5.13, there is a tendency toward higher exposure for eleventh graders. Eleven of the twenty-seven contrasts in Table 5.13 significantly favor eleventh grade target students, whereas seven contrasts favor eighth grade students. Examination of Tables 5.14 and 5.15 reveals the source of some of these differences. Among black target students nine of twelve significant differences favor eighth graders, while, among white students only nine of sixteen significant differences favor eleventh graders. It is important to note that in only four of twenty-seven contrasts do black and white students differ in the sign of the correlation. Thus, for the most part, black and white students agree in their perceptions about which activities were more prevalent at the eighth and eleventh grades, but they disagree somewhat on their perceptions of the magnitudes of grade level differences, i.e., black and white eighth and eleventh grade students agree on the sign of the relationship but disagree on the size of the relationship. Whether we focus on the sign or the magnitude of the relationship between grade and reported exposure among target students, we must be cautious regarding any inferences about the quality of implementation at the eighth and eleventh grade when those inferences are based upon student reported exposure.

TABLE 5.13
DIFFERENCES BETWEEN EIGHTH AND ELEVENTH GRADE TARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

Item Location	Brief Variable Description	r	F	Grade 8 N = 2783		Grade 11 N = 1906	
				X̄	SD	X̄	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.06	15.3**	3.20	1.75	3.40	1.66
S-5	2. Talk About Job Values	–.06	16.8**	3.66	1.76	3.45	1.64
S-6	3. Study Interests Needed	–.07	22.8**	3.39	1.71	3.15	1.58
S-9	4. Simulation	.03	3.5	3.73	1.80	3.83	1.71
S-11	5. Basic Skills and Careers	.11	54.4**	2.96	1.74	3.34	1.64
S-14	6. Career Education Tests	.04	7.9**	3.57	1.69	3.70	1.49
S-18	7. Reduce Race/Sex Stereotyping	–.02	1.3	2.74	1.74	2.69	1.59
S-19	8. My Work Values	–.08	34.1**	3.12	1.76	2.83	1.55
S-21	9. Job Getting Skills	–.07	23.4**	2.90	1.80	2.65	1.56
S-24	10. Aptitude Tests	.04	8.8**	3.28	1.84	3.44	1.60
S-27	11. Career Decision Making	–.01	1.0	3.19	1.88	3.14	1.68
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.03	3.0	4.21	1.66	4.13	1.49
S-3	2. Talk with Students	–.12	64.7**	3.38	1.71	2.98	1.58
S-7	3. Talk After Field Trips	.03	4.1*	3.80	1.73	3.90	1.60
S-8	4. Use Library	.00	0.0	3.38	1.69	3.38	1.55
S-22	5. Advice About Jobs	–.08	30.2**	3.31	1.87	3.02	1.61
S-23	6. Advice About Education	–.07	23.2**	3.41	1.93	3.15	1.64
S-25	7. Help in Getting Jobs	.00	0.4	3.60	2.02	3.56	1.80
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.03	4.3*	3.80	1.72	3.91	1.59
S-10	2. Go On Field Trips	.04	7.6**	3.70	1.76	3.84	1.60
S-12	3. Listen to Workers	–.03	3.0	3.59	1.79	3.51	1.63
S-13	4. Listen to Other Parents	.02	2.2	3.59	1.88	3.67	1.72
S-15	5. Take Home CE Material	.01	0.5	3.71	1.84	3.75	1.64
S-16	6. Listen to My Parents	.07	21.4**	2.13	1.66	2.36	1.63
S-17	7. Ask Parents About Jobs	.08	33.2**	2.46	1.71	2.74	1.64
S-20	8. Career Groups	.05	11.2**	3.84	1.83	4.02	1.62
S-26	9. Work Study	.03	4.3*	3.55	2.02	3.67	1.88

*p < .05
**p < .01

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/4662	.07	34.9	.01	47%	311
Linkage (u)	7/4642	.04	54.8	.01	27%	467
Extra School (u)	9/4662	.03	18.3	.01	20%	669
Common Contribution		.01			7%	
Total R^2	27/4662	.15	30.6	.01	101%	186
Adjusted R^2		.15				

TABLE 5.14
DIFFERENCES BETWEEN BLACK EIGHTH AND ELEVENTH GRADE TARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

Item Location	Brief Variable Description	r	F	Grade 8 N = 423		Grade 11 N = 390	
				X̄	SD	X̄	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	–.00	0.0	2.98	1.83	2.97	1.75
S-5	2. Talk About Job Values	–.05	1.9	3.38	1.85	3.21	1.68
S-6	3. Study Interests Needed	–.10	8.3**	3.17	1.77	2.83	1.63
S-9	4. Simulation	.01	0.0	3.35	1.86	3.37	1.75
S-11	5. Basic Skills and Careers	.16	20.9**	2.47	1.75	3.02	1.68
S-14	6. Career Education Tests	.09	6.2*	3.21	1.83	3.51	1.52
S-18	7. Reduce Race/Sex Stereotyping	–.01	0.1	2.50	1.87	2.46	1.57
S-19	8. My Work Values	–.08	4.6*	2.78	1.86	2.53	1.51
S-21	9. Job Getting Skills	–.02	0.4	2.36	1.77	2.29	1.49
S-24	10. Aptitude Tests	.11	10.6**	2.92	1.97	3.33	1.61
S-27	11. Career Decision Making	.07	3.6	2.56	1.93	2.79	1.63
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.07	3.7	4.09	1.65	3.88	1.53
S-3	2. Talk with Students	–.09	6.0*	3.09	1.77	2.80	1.59
S-7	3. Talk After Field Trips	.06	3.2	3.41	1.79	3.62	1.67
S-8	4. Use Library	–.01	0.1	3.06	1.79	3.03	1.54
S-22	5. Advice About Jobs	–.04	1.2	2.81	1.92	2.67	1.61
S-23	6. Advice About Education	.01	0.0	2.88	2.00	2.91	1.66
S-25	7. Help in Getting Jobs	.02	0.4	3.08	2.09	3.16	1.73
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.03	0.5	3.68	1.76	3.77	1.63
S-10	2. Go On Field Trips	.08	5.7*	3.40	1.79	3.69	1.61
S-12	3. Listen to Workers	.02	0.5	3.08	1.89	3.17	1.64
S-13	4. Listen to Other Parents	.07	3.7	3.08	1.97	3.33	1.71
S-15	5. Take Home CE Material	.08	4.7*	3.19	1.95	3.46	1.64
S-16	6. Listen to My Parents	.07	4.2*	2.07	1.75	2.32	1.63
S-17	7. Ask Parents About Jobs	.13	13.1**	2.33	1.77	2.76	1.65
S-20	8. Career Groups	.10	8.6**	3.44	1.94	3.81	1.62
S-26	9. Work Study	.08	5.1*	3.18	2.10	3.49	1.83

$^{*}p < .05$
$^{**}p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/785	.08	6.81	.01	50%	272
Linkage (u)	7/785	.03	4.02	.01	19%	618
Extra School (u)	9/785	.04	4.16	.01	25%	500
Common Contribution		.01			6%	
Total R^2	27/785	.16	5.55	.01	100%	184
Adjusted R^2		.13				

TABLE 5.15

DIFFERENCES BETWEEN WHITE EIGHTH AND ELEVENTH GRADE TARGET STUDENTS' CLASSROOM, LINKAGE AND EXTRA SCHOOL ACTIVITIES

Item Location	Brief Variable Description	r	F	Grade 8 N = 2019		Grade 11 N = 1340	
				$\bar{X}$	SD	$\bar{X}$	SD
	CLASSROOM ACTIVITIES:						
S-1	1. Use Media	.09	28.3**	3.48	1.52	3.76	1.36
S-5	2. Talk About Job Values	–.09	29.2**	4.02	1.42	3.75	1.38
S-6	3. Study Interests Needed	–.08	19.5**	3.70	1.44	3.48	1.33
S-9	4. Simulation	.04	5.1*	4.13	1.45	4.24	1.33
S-11	5. Basic Skills and Careers	.12	48.8**	3.30	1.55	3.66	1.38
S-14	6. Career Education Tests	.05	7.5**	3.91	1.36	4.04	1.11
S-18	7. Reduce Race/Sex Stereotyping	–.02	2.4	2.99	1.58	2.93	1.46
S-19	8. My Work Values	–.10	35.9**	3.42	1.55	3.11	1.39
S-21	9. Job Getting Skills	–.09	29.6**	3.24	1.62	2.94	1.42
S-24	10. Aptitude Tests	.03	2.7	3.64	1.57	3.73	1.34
S-27	11. Career Decision Making	–.04	4.6*	3.60	1.64	3.48	1.47
	LINKAGE ACTIVITIES:						
S-2	1. Career Fair	–.03	3.1	4.57	1.21	4.50	0.97
S-3	2. Talk with Students	–.16	89.8**	3.71	1.44	3.23	1.40
S-7	3. Talk After Field Trips	.03	2.8	4.19	1.36	4.26	1.20
S-8	4. Use Library	–.00	0.1	3.72	1.40	3.71	1.26
S-22	5. Advice About Jobs	–.11	41.5**	3.68	1.63	3.33	1.40
S-23	6. Advice About Education	–.11	38.3**	3.80	1.67	3.45	1.42
S-25	7. Help in Getting Jobs	–.03	2.6	4.03	1.74	3.94	1.56
	EXTRA SCHOOL ACTIVITIES:						
S-4	1. Shadow Experiences	.03	3.1	4.15	1.37	4.23	1.20
S-10	2. Go On Field Trips	.03	2.7	4.08	1.42	4.16	1.24
S-12	3. Listen to Workers	–.05	8.2**	4.01	1.46	3.86	1.32
S-13	4. Listen to Other Parents	.01	0.1	4.02	1.55	4.04	1.42
S-15	5. Take Home CE Material	–.00	0.1	4.12	1.51	4.10	1.30
S-16	6. Listen to My Parents	.07	18.1**	2.29	1.56	2.52	1.54
S-17	7. Ask Parents About Jobs	.07	18.8**	2.67	1.60	2.91	1.50
S-20	8. Career Groups	.04	6.1*	4.25	1.47	4.37	1.23
S-26	9. Work Study	.02	0.9	3.94	1.75	4.00	1.66

*$p < .05$

**$p < .01$

SUMMARY

Activity Set	SUMMARY BY ACTIVITY SET					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Classroom (u)	11/3331	.08	29.6	.01	44%	272
Linkage (u)	7/3331	.05	29.0	.01	28%	348
Extra School (u)	9/3331	.03	13.6	.01	17%	640
Common Contribution		.01			6%	
Total R^2	27/3331	.18	27.1	.01	100%	135
Adjusted R^2		.17				

Project Variation

Tables 5.16 and 5.24 present the differences in target student's exposure on a project-by-project basis. A positive correlation denotes that students in a particular project report generally higher frequency of exposure to the activity than the "average"* of students in the other projects. A negative correlation means that target students in a particular project report a frequency of exposure which is significantly below the "average" of all other target students. Only those correlations which are significant ($p < .05$ two tailed test) are reported in the tables. A blank column indicates that students were either not served or too few students were served to provide a stable estimate of exposure, e.g., results for only five black fifth grade students were available for analysis from Workville. Analyses are not reported for sample sizes of less than thirty students.

Among the thirteen projects that served fifth grade students (see Table 5.16) there are a number of significant differences ($p < .05$), although in most cases the magnitude of these differences is not overwhelming. Sixty percent of the total possible contrasts are significant, and the patterns of differences are orderly. Only Career City and Fallstaff showed mixed results. The remaining eleven projects present clear patterns of differences in student exposure to career education activities, with six projects showing, on the

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*We use the term "average" in this section to refer to the arithmetic average of all target students in the other projects.

TABLE 5.16
PROJECT BY PROJECT DIFFERENCES IN TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES
GRADE 5

Item Location	Brief Variable Description	PROJECTS Jobland N = 465	Workville N = 276	Trakeville N = 92	Awaresville N = 0	Voc. Beach N = 132	Un. Domain N = 134	Mt. Explor. N = 163	Prepton N = 336	Study Tn. N = 857	Cog. Camp N = 247	Bet. Springs N = 0	Middlesex N = 56	Career City N = 28	Opp. City N = 119	Falstaff N = 320
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.09	–.09	.08			–.07		–.07	–.09			.04	.07		.07
S-5	2. Talk About Job Values	.13	–.07	.06			.06	.09	–.07	–.06	–.06				–.04	
S-6	3. Study Interests Needed	.09	–.10	.06			.09	.06	–.04	–.11	–.04		.04	.08		
S-9	4. Simulation	.09	–.09	.08		.10				–.05			.06	–.07	.06	.08
S-11	5. Basic Skills and Careers	.09	.11				.12	.08		–.04			.04	.04	–.08	–.04
S-14	6. Career Education Tests	.13	–.12			.07			–.04	–.04			.06	.04		–.06
S-18	7. Reduce Race/Sex Stereotyping	.06		–.04			.04	.07		–.07	–.06			.09	–.04	
S-19	8. My Work Values	.05	–.08				.06	.09		–.08					–.04	
S-21	9. Job Getting Skills (NA)															
S-24	10. Aptitude Tests (NA)															
S-27	11. Career Decision Making (NA)															
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair		–.05	.10		.17									–.04	–.08
S-3	2. Talk with Students	.06	–.13	.08			.11			–.09			.05	.04		
S-7	3. Talk After Field Trips	.04	–.11	.09		.12	.07	.07		–.07	–.10		.06		–.08	
S-8	4. Use Library	.11	–.13	.05		.07		.08		–.11	.08		.04	–.05		
S-22	5. Advice About Jobs (NA)															
S-23	6. Advice About Education (NA)															
S-25	7. Help in Getting Jobs (NA)															
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences	.07	–.07			.04	.04			–.06			.05			
S-10	2. Go On Field Trips	.05	–.05	.06		.15		.06		–.10	–.13				–.04	.08
S-12	3. Listen to Workers	.04	–.11	.04		.13	.10	.05		–.06			.05	–.04		.04
S-13	4. Listen to Other Parents		–.11	.05		.05	.04	.06		–.07			.04	.04		
S-15	5. Take Home CE Material	.06	–.12	.05		.10		.05		–.04				–.06		
S-16	6. Listen to My Parents	.06				–.05									–.07	.05
S-17	7. Ask Parents About Jobs					–.04								.04	–.04	
S-20	8. Career Groups	.16	–.13	.12		.08				–.16	.12			–.05	–.07	–.06
S-26	9. Work Study (NA)															

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.02	.01	.01		.02	.03	.01	.02	.01	.01		.01	.03	.01	.02
Linkage Activities (u)	.01	.01	.01		.03	.01	.01	.01	.01	.02		.00	.01	.01	.00
Extra School Activities (u)	.03	.01	.01		.02	.01	.00	.01	.02	.03		.00	.01	.02	.02
Common Contribution	.01	.05	.01		.03	.01	.00	.00	.00	.01		.00	.00	.00	.00
Total R^2	.07	.07	.05		.09	.06	.03	.03	.04	.07		.01	.05	.04	.04
Adjusted R^2	.06	.07	.04		.08	.05	.02	.02	.03	.06		.00	.04	.03	.03

*Only those differenced significant (two-tailed F test) at the .05 level or better are included
A blank column indicates no appropriate respondents were included.

"average," a high frequency of student reported exposure and five projects showing a lower frequency of exposure.

Table 5.17 and 5.18 present project-by-project differences for black and white fifth grade target students respectively. Six of thirteen projects serving fifth graders have enough black students to provide meaningful estimates of student exposure, while twelve of the thirteen projects have thirty or more white students. A comparison of black and white students' reported exposure provides some insight into the generalizability of project-to-project variation. Examination of Tables 5.17 and 5.18 indicates that both black and white students consistently report more exposure to career education activities in Jobland and, to a lesser extent, in Vocation Beach and Unique Domain. Both black and white students report lower exposure in Studytown and, with much less consistency, in Prepton and Cognitive Camp. Overall, the within project consistency across black and white fifth grade students regarding reported exposure to career education is high. Note we previously observed that black students tend to overreport, but, when we control for this tendency by analyzing the groups separately, the same patterns emerge for projects serving both black and white students.

Tables 5.19, 5.20 and 5.21 present project-by-project differences in target eighth grade students' reported exposure to career education activities. Sixty percent of the total contrasts presented from Table 5.19 for black and white target eighth graders are significant, and the pattern of

TABLE 5.17

PROJECT BY PROJECT DIFFERENCES IN BLACK TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*

GRADE 5

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 38	Workville N = 5	Trekeville N = 72	Awaresville N = 0	Voc. Beach N = 84	Un. Domain N = 97	Mt. Explor. N = 15	Prepton N = 108	Study Tn. N = 112	Cog. Camp N = 60	Ret. Springs N = 0	Middlesex N = 1	Career City N = 1	Opp. City N = 0	Fallstaff N = 0
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.11		.12			–.16		–.09							
S-5	2. Talk About Job Values	.14							–.10							
S-6	3. Study Interests Needed	.14		.08			–.12		–.09	–.18						
S-9	4. Simulation			.10		.15				–.10						
S-11	5. Basic Skills and Careers	.10					.18			–.18						
S-14	6. Career Education Tests	.14				.12	–.08		–.10							
S-18	7. Reduce Race/Sex Stereotyping			–.10			.10			–.11						
S-19	8. My Work Values									–.14						
S-21	9. Job Getting Skills (NA)															
S-24	10. Aptitude Tests (NA)															
S-27	11. Career Decision Making (NA)															
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair					.22				–.14						
S-3	2. Talk with Students			.11		.08	.13			–.18						
S-7	3. Talk After Field Trips			.08		.14	.09			–.14	–.08					
S-8	4. Use Library	.13				.14	–.09			–.17	.11					
S-22	5. Advice About Jobs (NA)															
S-23	6. Advice About Education (NA)															
S-25	7. Help in Getting Jobs (NA)															
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences	.13														
S-10	2. Go On Field Trips			.08		.26			–.12	–.08	–.16					
S-12	3. Listen to Workers					.23	.09		–.16	.11						
S-13	4. Listen to Other Parents					.08				–.13						
S-15	5. Take Home CE Material					.16				–.09						
S-16	6. Listen to My Parents	.08														
S-17	7. Ask Parents About Jobs															
S-20	8. Career Groups	.13		.12			–.09			–.24						
S-26	9. Work Study (NA)															

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.04		.05		.05	.10		.03	.04	.03					
Linkage Activities (u)	.02		.02		.04	.03		.00	.02	.04					
Extra School Activities (u)	.05		.04		.06	.03		.01	.04	.05					
Common Contribution	.01		.00		.05	.02		.01	.00	.02					
Total R^2	.11		.12		.20	.18		.06	.10	.13					
Adjusted R^2	.07		.08		.16	.14		.01	.05	.09					

*Only those differenced significant (two-tailed F test) at the .05 level or better are included
A blank column indicates no appropriate respondents were included.

TABLE 5.19
PROJECT BY PROJECT DIFFERENCES IN WHITE TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*
GRADE 5

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 348	Workville N = 258	Trekville N = 15	Awareville N = 0	Voc. Beach N = 45	Un. Domain N = 32	Mt. Explor. N = 132	Prepton N = 220	Study Tn. N = 287	Cog. Camp N = 187	Sel. Springs N = 0	Middletown N = 50	Career City N = 280	Opp. City N = 112	Fallstaff N = 310
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.08	−.10						−.07	−.10				.08		.09
S-5	2. Talk About Job Values	.13	−.07					.12	−.08	−.08	−.04					
S-6	3. Study Interests Needed	.09	−.11				.08	.07		−.09	−.04		.08	.07		
S-9	4. Simulation	.11	−.07			.04				−.06			.08	−.08	.09	−.06
S-11	5. Basic Skills and Careers	.08	−.10				.06	.08			−.06		.08	.07	−.08	
S-14	6. Career Education Tests	.14	−.14							−.08	−.04		.08	.07		−.04
S-18	7. Reduce Race/Sex Stereotyping	.04						.09			−.07			.09	−.06	−.06
S-19	8. My Work Values		−.10				.13	.10		−.06				.04	−.06	
S-21	9. Job Getting Skills (NA)															
S-24	10. Aptitude Tests (NA)															
S-27	11. Career Decision Making (NA)															
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair					.08		.04					.05			
S-3	2. Talk with Students	.08	−.14			−.04	.10	.04		−.06			.08	.06		
S-7	3. Talk After Field Trips	.06	−.11					.11		−.06	−.11		.08	.07	−.06	.06
S-8	4. Use Library	.12	−.14					.10		−.11			.06			
S-22	5. Advice About Jobs (NA)															
S-23	6. Advice About Education (NA)															
S-25	7. Help in Getting Jobs (NA)															
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences	.06	−.08							−.06			.06			
S-10	2. Go On Field Trips	.05	−.06					.08		−.12	−.13				−.04	.12
S-12	3. Listen to Workers	.06	−.11				.07	.09		−.08			.07			
S-13	4. Listen to Other Parents		−.12				−.05	.10		−.09	−.06		.06	.06	.05	
S-15	5. Take Home CE Material	.07	−.12					.08		−.06	.05			−.04		
S-16	6. Listen to My Parents	.08				−.06									−.09	.05
S-17	7. Ask Parents About Jobs					−.05								.05	−.05	
S-20	8. Career Groups	.18	−.14				−.08			−.14	.16				−.07	−.06
S-26	9. Work Study (NA)															

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.02	.01			.01	.03	.02	.02	.01	.01		.01	.03	.02	.02
Linkage Activities (u)	.01	.01			.01	.02	.01	.02	.01	.01		.00	.01	.01	.00
Extra School Activities (u)	.03	.01			.01	.02	.01	.01	.02	.04		.00	.02	.02	.02
Common Contribution	.02	.04			.00	.00	.01	.00	.00	.01		.01	.00	.00	.00
Total R^2	.08	.09			.03	.07	.05	.04	.04	.07		.02	.06	.05	.05
Adjusted R^2	.06	.07			.02	.06	.03	.02	.03	.05		.01	.05	.04	.04

*Only those differenced significant (two-tailed F test) at the .05 level or better are included
A blank column indicates no appropriate respondents were included.

TABLE 5.19

PROJECT BY PROJECT DIFFERENCES IN TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*

GRADE 5

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 480	Workville N = 253	Trekville N = 0	Avaresville N = 0	Voc. Beach N = 8?	Un. Domain N = 120	Mt. Explor. N = 300	Prepton N = 322	Study To. N = 199	Cog. Camp N = 228	Bot. Springs N = 302	Middlesex N = 0	Career City N = 436	Opp. City N = 71	Fallstaff N = 613
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.04	–.05			.07	.06	.04				–.06		–.04		
S-5	2. Talk About Job Values	–.06	–.06			.07	.09	.05			.06	–.07				
S-6	3. Study Interests Needed		–.06			.04	.08	.07			.10	–.09				–.04
S-9	4. Simulation		–.05			.06	.06	.14			.06	–.05				–.12
S-11	5. Basic Skills and Careers	.06	–.09			.07	.17					–.14			.04	
S-14	6. Career Education Tests		–.04			.06		.05			.08					–.05
S-18	7. Reduce Race/Sex Stereotyping					.06	.07		–.04			–.09		.12		
S-19	8. My Work Values		–.05			.05	.08					–.07				.04
S-21	9. Job Getting Skills		–.08				.08	.04			.12	–.09		–.05		–.04
S-24	10. Aptitude Tests		–.09					.06		–.05	.13			.05		–.09
S-27	11. Career Decision Making		–.07			.07	.14	.06			.11	.10				–.08
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair	–.04	–.05				.10				.16					.09
S-3	2. Talk with Students		–.07			.05	.07			–.04	.14	–.09				
S-7	3. Talk After Field Trips		–.08			.08	.11	.05			.12	–.08			–.04	.03
S-8	4. Use Library		–.08			.04	.04	.17				–.05		–.05		
S-22	5. Advice About Jobs	.09	–.06			.06	.07	[illegible]	.06		.05	–.08		–.08		–.08
S-23	6. Advice About Education		–.06			.08	.07	.06	.04		.09	–.08		–.04		–.08
S-25	7. Help in Getting Jobs	.04				.04	.06	.07	.04		.05	.04		–.07		–.09
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences		–.04					.07	.05		–.08	.07				–.08
S-10	2. Go On Field Trips		–.04			.08	.07	.10			.13	–.07			–.04	–.12
S-12	3. Listen to Workers		–.08			.05	.10		.04		.11	–.07				.07
S-13	4. Listen to Other Parents		–.04			.06	.08	.04	.05		.05	–.05				–.08
S-15	5. Take Home CE Material		–.07			.04	.09	.07	.04		.04	–.05		–.04		–.06
S-16	6. Listen to My Parents	.06	–.08					–.05		–.04		–.08				.05
S-17	7. Ask Parents About Jobs		–.05			.05						–.08		.04		
S-20	8. Career Groups	.11	–.07			.15		.04		–.04	.09	–.07		–.09	–.04	–.04
S-26	9. Work Study	.04	–.08					.12			.07	–.08				.07

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.01	.01			.02	.03	.01	.00	.01	.02	.02		.03	.00	.07
Linkage Activities (u)	.02	.00			.00	.01	.03	.00	.00	.03	.00		.01	.00	.01
Extra School Activities (u)	.02	.00			.02	.01	.02	.01	.01	.01	.00		.01	.01	.01
Common Contribution	.00	.01			.00	.01	.01	.01	.00	.01	.01		.00	.01	.00
Total R^2	.05	.02			.04	.06	.07	.02	.02	.07	.03		.05	.02	.04
Adjusted R^2	.04	.01			.03	.05	.06	.01	.01	.07	.02		.04	.01	.04

*Only those differenced significant (two-tailed F test) at the .05 level or better are included. A blank column indicates no appropriate respondents were included.

differences is decidely non-random. Of the twelve project serving eighth graders, six "averaged" higher and six "averaged" lower in student reported exposure (black and white students combined). When black and white students are studied separately, much less discrimination is seen among the projects in black students' reported exposure than for white students' exposure. Results for Prepton, for example, illustrate the importance of separately analyzing black and white students' reported exposure. Neither white (Table 5.21) nor black (Table 5.20) students report a consistently high or low level of exposure relative to other projects, but when results for black and white students are combined (see Table 5.19), Prepton appears to have higher than average student reported exposure. The cause of this anomaly is black students' tendency to overreport, a tendency which is left uncontrolled in the combined analysis; in general projects with relatively large numbers of black students appear to have higher student reported exposure. When black and white students' reported exposure scores are analyzed separately, for a project with above average overall exposure, it is conceivable to find both ethnic groups actually are below their respective averages.

Tables 5.22, 5.23 and 5.24 present project-by-project results for eleventh grade target students. Forty-one percent of the project contrasts seen in these tables are significant, representing a one-third decrease in the number of differences observed among fifth and eighth graders. Again, it is apparent that project-by-project differences in reported exposure among black students are less frequent

TABLE 5.20
PROJECT BY PROJECT DIFFERENCES IN BLACK TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*
GRADE 8

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 87	Workville N = 6	Tradesville N = 0	Awaresville N = 0	Voc. Beach N = 46	Un. Domain N = 92	Mt. Explor. N = 47	Prepton N = 70	Study Tn. N = 46	Cog. Camp N = 33	Bet. Springs N = 0	Middlesex N = 0	Career City N = 2	Opp. City N = 0	Fallstaff N = 3
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media					.13										
S-5	2. Talk About Job Values	–.20				.14										
S-6	3. Study Interests Needed	–.15					.10									
S-9	4. Simulation															
S-11	5. Basic Skills and Careers						.22	–.17								
S-14	6. Career Education Tests							.12								
S-18	7. Reduce Race/Sex Stereotyping					.11	.11									
S-19	8. My Work Values					.10										
S-21	9. Job Getting Skills															
S-24	10. Aptitude Tests						–.11	.10								
S-27	11. Career Decision Making	–.10					.12									
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair	–.13									.14					
S-3	2. Talk with Students	–.17									.10					
S-7	3. Talk After Field Trips						.10									
S-8	4. Use Library	–.15						.16								
S-22	5. Advice About Jobs															
S-23	6. Advice About Education	–.13														
S-25	7. Help in Getting Jobs															
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences															
S-10	2. Go On Field Trips	–.11							.12							
S-12	3. Listen to Workers					.11										
S-13	4. Listen to Other Parents															
S-15	5. Take Home CE Material															
S-16	6. Listen to My Parents					.13										
S-17	7. Ask Parents About Jobs					.22	–.10									
S-20	8. Career Groups															
S-26	9. Work Study															

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.04				.04	.06	.03	.01	.02	.03					
Linkage Activities (u)	.05				.01	.01	.04	.01	.01	.02					
Extra School Activities (u)	.03				.06	.03	.01	.04	.02	.01					
Common Contribution	.02				.01	.00	.04	.01	.01	.02					
Total R^2	.14				.12	.14	.12	.07	.06	.06					
Adjusted R^2	.07				.04	.07	.04	.01	.02	.00					

*Only those differenced significant (two-tailed F test) at the .05 level or better are inc
A blank column indicates no appropriate respondents were included.

TABLE 5.21
PROJECT BY PROJECT DIFFERENCES IN WHITE TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*
GRADE 8

Item Location	Brief Variable Description	PROJECTS Jobland N = 368	Workville N = 230	Trekville N = 0	Amerasville N = 0	Voc. Beach N = 35	Ah. Domain N = 27	Mt. Explor. N = 230	Prepton N = 244	Study Tn. N = 104	Cog. Camp N = 182	Bet. Springs N = 367	Middlesex N = 0	Career City N = 400	Opp. City N = 66	Fallstaff N = 486
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.06	.04				.06	.04				-.05				
S-5	2. Talk About Job Values		-.06				.05				.06	-.06				
S-6	3. Study Interests Needed		-.06					.09			.10	-.09				
S-9	4. Simulation							.16			.04					-.10
S-11	5. Basic Skills and Careers	.05	-.07				.07					-.13			.08	
S-14	6. Career Education Tests							.04			.09					
S-18	7. Reduce Race/Sex Stereotyping						.04		-.06			-.09		.14		
S-19	8. My Work Values	.04	-.04				.07					-.07		.04		
S-21	9. Job Getting Skills		-.08					.04			.12	-.07				
S-24	10. Aptitude Tests		-.09					.05		-.08	.14			.07		.08
S-27	11. Career Decision Making	.06	-.06					.05			.13	-.10				-.09
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair						.08				.16					-.08
S-3	2. Talk with Students	.04	.08							-.06	.16	-.09				
S-7	3. Talk After Field Trips		-.05					.06			.14					
S-8	4. Use Library		-.06					.16						-.04		
S-22	5. Advice About Jobs	.09	-.36			.05		.05			.05	-.06		-.06		-.05
S-23	6. Advice About Education	.05	-.04					.08			.08	-.07				-.06
S-25	7. Help in Getting Jobs	.08						.08			.08			-.08		-.07
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences	.08						.08			.09	-.08				-.07
S-10	2. Go On Field Trips					.07		.09	-.08		.14	-.08		.08		-.10
S-12	3. Listen to Workers		-.05								.14	-.06				-.04
S-13	4. Listen to Other Parents										.06					-.04
S-15	5. Take Home CE Material		-.06					.07			.05				.05	
S-16	6. Listen to My Parents	.06	-.05					-.04				-.07				.08
S-17	7. Ask Parents About Jobs	.05	-.04									-.06		.04		
S-20	8. Career Groups	.12	-.08			.10					.10	-.06		-.08	-.04	
S-28	9. Work Study	.08	-.07					.12	-.05		.09	-.07				.05

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.00	.01			.00	.02	.02	.00	.01	.03	.01		.01	.00	.02
Linkage Activities (u)	.00	.02			.00	.01	.03	.00	.00	.03	.00		.02	.00	.00
Extra School Activities (u)	.02	.00			.01	.00	.02	.01	.00	.02	.00		.03	.01	.01
Common Contribution	.02	.01			.01	.01	.01	.01	.01	.02	.01		.01	.01	.02
Total R^2	.04	.02			.02	.04	.07	.02	.02	.09	.02		.08	.02	.05
Adjusted R^2	.03	.01			.01	.03	.06	.01	.00	.08	.00		.06	.01	.04

*Only those differenced significant (two-tailed F test) at the .05 level or better are included
A blank column indicates no appropriate respondents were included.

TABLE 5.22
PROJECT BY PROJECT DIFFERENCES IN TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*
GRADE 11

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 372	Workville N = 203	Trekville N = 66	Awareville N = 5	Voc. Beach N = 106	Un. Domain N = 87	Mt. Explor. N = 280	Prepton N = 387	Study Tn. N = 166	Cap. Camp N = 0	Hot. Springs N = 126	Middletown N = 0	Career City N = 214	Opp. City N = 78	Falstaff N = 119
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.05		.07								-.07		-.08		
S-5	2. Talk About Job Values		-.09	.08		.05	.06									
S-6	3. Study Interests Needed		-.09	.08					.08			-.06		-.05		
S-9	4. Simulation					.06	.07	.06		-.08				-.08		
S-11	5. Basic Skills and Careers	-.06	-.08			.07	.09		.06						-.06	
S-14	6. Career Education Tests		-.06			.06	.11									-.08
S-18	7. Reduce Race/Sex Stereotyping						.06		.08						-.05	
S-19	8. My Work Values		-.04			.08	.06		.07							
S-21	9. Job Getting Skills	.07	-.07	.06			.08		.06			-.06		-.05		
S-24	10. Aptitude Tests			.08			.08	.08								-.07
S-27	11. Career Decision Making		.11			.09	.10		.09			-.05				
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair		-.05			.10	.01		.09							-.05
S-3	2. Talk with Students						.06		.06	-.08						
S-7	3. Talk After Field Trips		-.04	.16			.05			-.07		-.08				
S-8	4. Use Library	-.06	-.05	.08					.07	-.04						
S-22	5. Advice About Jobs		-.08			.05	.06	-.04	.11	-.08						
S-23	6. Advice About Education		-.05				.07		.10			-.06			-.06	
S-25	7. Help in Getting Jobs		-.07			.08	.11		.09			-.06		-.06		
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences		-.07	-.06		.08	.06					-.05		-.04		
S-10	2. Go On Field Trips	.09	-.07	.22				.07	-.06	-.09		-.05				
S-12	3. Listen to Workers		-.12	.09			.12					-.09		-.04		
S-13	4. Listen to Other Parents	.05	-.07				.06									
S-15	5. Take Home CE Material						.06		.05						.04	
S-16	6. Listen to My Parents			-.06					.06							-.06
S-17	7. Ask Parents About Jobs								.06							
S-20	8. Career Groups	.08	-.04			.05	.06			-.07					.05	
S-26	9. Work Study		-.08	.05		.08	.07					-.07		-.08		

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.02	.01	.02		.02	.01	.01	.01	.01		.01		.01	.01	.01
Linkage Activities (u)	.00	.00	.22		.01	.00	.01	.02	.01		.00		[illegible]	.00	.00
Extra School Activities (u)	.02	.01	.06		.00	.01	.01	.01	.02		.01		.00	.02	.00
Common Contribution	.01	.01	.02		.01	.02	.00	.01	.00		.01		.01	.08	.01
Total R^2	.05	.03	.12		.04	.04	.03	.05	.04		.03		.02	.03	.02
Adjusted R^2	.03	.02	.11		.02	.02	.02	.03	.03		.01		.01	.01	.00

*Only those differenced significant (two-tailed F test) at the .05 level or better are included
A blank column indicates no appropriate respondents were included.

TABLE 5.23
PROJECT BY PROJECT DIFFERENCES IN BLACK TARGET STUDENTS' FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*
GRADE 11

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 70	Workville N = 5	Techville N = 20	[illegible] N = 0	Voc. Beach N = 66	Un. Domain N = 61	Mt. Explor. N = 0	[illegible] N = 109	Study Tn. N = 23	Cog. Comp N = 0	Bel. Springs N = 1	[illegible] N = 0	Career City N = 1	Opp. City N = 0	[illegible] N = 2
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media															
S-5	2. Talk About Job Values															
S-6	3. Study Interests Needed															
S-9	4. Simulation	–.14							.12							
S-11	5. Basic Skills and Careers	–.10					.14		.13							
S-14	6. Career Education Tests						.13									
S-18	7. Reduce Race/Sex Stereotyping	–.14							.14							
S-19	8. My Work Values															
S-21	9. Job Getting Skills															
S-24	10. Aptitude Tests	–.12														
S-27	11. Career Decision Making	–.11							.11							
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair	–.12							.14							
S-3	2. Talk with Students															
S-7	3. Talk After Field Trips															
S-8	4. Use Library															
S-22	5. Advice About Jobs								.16							
S-23	6. Advice About Education	–.13														
S-25	7. Help in Getting Jobs								.12							
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences					.10										
S-10	2. Go On Field Trips															
S-12	3. Listen to Workers						.13									
S-13	4. Listen to Other Parents															
S-15	5. Take Home CE Material															
S-16	6. Listen to My Parents															
S-17	7. Ask Parents About Jobs															
S-20	8. Career Groups															
S-26	9. Work Study															

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.04				.02	.01		.01							
Linkage Activities (u)	.02				.01	.00		.02							
Extra School Activities (u)	.01				.00	.01		.01							
Common Contribution	.03				.01	.01		.01							
Total R^2	.10				.04	.04		.06							
Adjusted R^2	.03				.02	.02		.03							

*Only those differences significant (two-tailed F test) at the .05 level or better are included.
A blank column indicates no appropriate respondents were included.

TABLE 5.24

PROJECT BY PROJECT DIFFERENCES IN WHITE TARGET STUDENT'S FREQUENCY OF EXPOSURE TO CAREER EDUCATION ACTIVITIES*

GRADE 11

Item Location	Brief Variable Description	PROJECTS														
		Jobland N = 278	Workville N = 102	Trakeville N = 42	Amoraville N = 6	Voc.Beach N = 38	Un.Domain N = 30	Mt. Explor. N = 230	Prapton N = 274	Study Tn. N = 100	Cog.Camp N = 0	Bet.Springs N = 134	Middlesex N = 0	Career City N = 204	Opp.City N = 77	Falstaff N = 117
	CLASSROOM ACTIVITIES:															
S-1	1. Use Media	.07		.15								–.06		–.05		
S-5	2. Talk About Job Values		–.08	.05												
S-6	3. Study Interests Needed		–.08	.08												
S-9	4. Simulation	.05						.09	–.05	–.09						
S-11	5. Basic Skills and Careers		–.06					.06	.08							
S-14	6. Career Education Tests									–.06						–.05
S-18	7. Reduce Race/Sex Stereotyping					–.08									–.05	
S-19	8. My Work Values															
S-21	9. Job Getting Skills	.10														
S-24	10. Aptitude Tests			.06		–.06	.08	.09		–.05				.05		–.06
S-27	11. Career Decision Making		–.09						.06							
	LINKAGE ACTIVITIES:															
S-2	1. Career Fair															
S-3	2. Talk with Students	.06								–.06						
S-7	3. Talk After Field Trips			.18				.06		–.09						
S-8	4. Use Library	–.07		.08												
S-22	5. Advice About Jobs								.08	–.08						
S-23	6. Advice About Education								.09						–.06	
S-25	7. Help in Getting Jobs						.08		.05							
	EXTRA SCHOOL ACTIVITIES:															
S-4	1. Shadow Experiences	.06	–.08	.06												
S-10	2. Go On Field Trips	.10	–.08	.25				.12	–.09	–.10						
S-12	3. Listen to Workers		–.11	.13				.06				–.08				
S-13	4. Listen to Other Parents	.06								–.07						
S-15	5. Take Home CE Material					–.05									.07	
S-16	6. Listen to My Parents							–.05	.06							–.06
S-17	7. Ask Parents About Jobs							–.05	.06							
S-20	8. Career Groups	.13								–.07					–.06	
S-26	9. Work Study	.06	–.07	.05			.08					–.08				

SUMMARY BY ACTIVITY SET

Activity Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Classroom Activities (u)	.01	.01	.03		.02	.01	.01	.01	.01	.01	.01		.01	.01	.01
Linkage Activities (u)	.01	.00	.02		.01	.00	.01	.02	.01	.00	.00		.00	.01	.00
Extra School Activities (u)	.02	.01	.08		.00	.01	.01	.01	.02	.01	.01		.00	.02	.00
Common Contribution	.02	.01	.02		.01	.02	.00	.01	.00	.00	.01		.01	.00	.01
Total R^2	.06	.03	.15		.04	.04	.03	.05	.04	.02	.03		.02	.04	.02
Adjusted R^2	.04	.01	.13		.02	.02	.02	.03	.03	.01	.01		.01	.02	.00

*Only those differenced significant (two-tailed F test) at the .05 level or better are included
A blank column indicates no appropriate respondents were included.

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than among white students. One project, Jobland, evidences marked differences in reported exposure among black and white students. Black students in Jobland report more exposure. Black and white students in Prepton, on the other hand, are consistently above their respective "averages" in reported exposure. Similarly, black and white students in both Unique Domain and Vocation Beach report exposure levels about equal to their respective group averages. Note again, however, that in the combined analysis Vocation Beach and Unique Domain appear to have high levels of student reported exposure. Thus, the question of which projects have higher student reported exposure to career education cannot be answered correctly without knowing the racial characteristics of the students served in each project.

In general, we must be impressed by the regularity of pattern in student reported exposure to career education activities. The data are clearly not random in that those projects promoting high exposure tend to do so on many of the activities, whereas projects which are less successful in promoting student exposure tend to be less successful across a wide range of student activities. Similarly, the most successful projects tend to have success at all grade levels with both black and white students, and less successful projects tend to be less successful at all grade levels with both black and white students. Both the within-grade across-activity patterns and the across-grade patterns are stable and highly suggestive of differential project effects, although the magnitude of these effects is generally not overwhelming.

Determinants of Student Reported Exposure

This section examines several of the background characteristics which may influence how much exposure students report for career education activities. If, for example, males report less exposure to career education than females, then projects would need to investigate possible reasons for this differential exposure because, theoretically, there should be little or no correlation between background characteristics and exposure level, i.e., all projects profess to serve all students regardless of postsecondary plans, sex, SES, or other characteristics.

Tables 5.25, 5.26, and 5.27 present the zero order correlations between several background variables and student reported exposure to classroom, linkage, and extra school activities for target students in each of the three grades. The multiple R^2s and adjusted R^2s are also given. The three exposure variables have been coded in such a way that a negative correlation means less exposure for individuals possessing high levels of the background characteristic. For example, in Table 5.25, the father's educational level is negatively correlated with the frequency of exposure to linkage activities ($r = -.13$) meaning that students with well-educated fathers report lower exposure to linkage activities. Similarly, black students, as has been noted previously, report more frequent exposure to all three types of activities at all grade levels than do white students. Other minority students could not be included in these

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TABLE 5.25
RELATIONSHIPS BETWEEN STUDENTS' BACKGROUND CHARACTERISTICS AND TARGET STUDENTS' EXPOSURE TO CAREER EDUCATION

GRADE 5 (N = 277 complete records)

Background Characteristics	Exposure Variable Sets		
	Classroom Activities	Linkage Activities	Extra School Activities
ex	–.01	.00	.01
ge	.04	.06	–.01
hite	–.06	–.13*	–.11*
lack	.11*	.17*	.14**
lumber of Siblings	.08	.09	.06
lother's Educational Level	–.04	–.10*	–.08
ather's Educational Level	.00	–.13*	–.09
irade Point Average	.00	–.08	–.07
mount of Homework	.13*	.12*	.14**
mount of Television	–.03	.03	.03
otal R^2	.04	.06	.05
djusted R^2	.00	.02	.01

* < .05 ** < .01 *** < .001 F = 1.15 1.79 1.46

TABLE 5.26
RELATIONSHIPS BETWEEN STUDENTS' BACKGROUND CHARACTERISTICS AND TARGET STUDENTS' EXPOSURE TO CAREER EDUCATION

GRADE 8 (N = 538 complete records)

Background Characteristics	Exposure Variable Sets		
	Classroom Activities	Linkage Activities	Extra School Activities
ex	.06	–.02	–.01
ge	.08*	.11**	.08*
hite	–.17***	–.19***	–.16***
lack	.17***	.18***	.15***
umber of Siblings	.04	.06	.01
other's Educational Level	–.02	–.09*	–.02
ather's Educational Level	–.11**	–.13**	–.08*
rade Point Average	.08*	–.05	–.02
mount of Homework	.16***	.08*	.11*
mount of Television	.01	.07	.03
otal R^2 djusted R^2	.10** .09	.08** .06	.06** .04
* < .05 ** < .01 *** < .001 F =	5.88	4.33	3.39

TABLE 5.27
RELATIONSHIPS BETWEEN STUDENTS' BACKGROUND CHARACTERISTICS AND TARGET STUDENTS' EXPOSURE TO CAREER EDUCATION

GRADE 11 (N = 687 complete records)

Background Characteristics	Exposure Variable Sets		
	Classroom Activities	Linkage Activities	Extra School Activities
x	.07*	.04	.02
e	–.02	–.01	.00
ite	–.21***	–.20***	–.14***
ck	.26***	.24***	.19***
mber of Siblings	.05	.07*	.01
ther's Educational Level	–.08*	–.09**	–.07*
her's Educational Level	–.11**	–.13***	–.06
de Point Average	.06	.03	–.01
ount of Homework	.13**	.11**	.08*
ount of Television	.06	.07*	.06
al R^2	.11***	.09***	.05**
justed R^2	.10	.08	.04

< .05 ** < .01 *** < .001 F = 9.10 6.62 3.51

tables because of the relatively small sample sizes of these groups.

At all three grade levels, sex, age, grade point average, and amount of television are essentially unrelated to student reported exposure. Amount of homework is consistently and positively related to classroom, linkage, and extra school activities at all three grade levels. Ethnicity is the most consistent predictor, with black students reporting consistently higher exposure than whites. Overall, most of the correlations are small, suggesting that, with the exception of ethnicity, background characteristics are poor determinants of student reported exposure to career education. The fact that the pattern of relationships between grade and student exposure, project and student exposure, and target-nontarget group membership and student exposure are highly similar in direction suggests that an overreport response bias is operating in black students' reported exposure.* Once this response bias is controlled by separately analyzing black and white students' response, many abnormalties in relationships between exposure and student outcomes disappear.

Teacher Reported Implementation of Career Education

During April and May, 1977, 818 target and nontarget teachers completed the Teacher Survey Form. In addition to staff characteristics and other information about determinants of implementation, this form requested teachers to report on the frequency with which they implemented career education-oriented activities during the 1976-77 school year. This section examines four sources of variation in teacher reported implementation of career education: (1) target-nontarget differences, (2) grade level differences, (3) project differences, and (4) differences associated with four sets of determinants of implementation (teacher characteristics, teaching context, organizational capacity, and adoption strategy).

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*One alternative hypothesis is that black students perceive different amounts of exposure because they actually receive a different curriculum than white students. Although this hypotheses is plausible at the eighth and eleventh grades it is decidedly less credible at the fifth grade level. Given the similarity in patterns across all grades we are inclined to conclude that black students overreport exposure.

Target and Nontarget Differences

Tables 5.28, 5.29, and 5.30 present the differences between fifth, eighth, and eleventh grade target and nontarget teachers' reported implementation of career education. Career education activities have been organized to parallel the classification used in the previous section on student exposure.* In order to more fully represent the process of implementation, two process dimensions dealing with practitioners have been added to all tables in this section; these are: Knowledge and Understanding, and Value Internalization. The Knowledge and Understanding process dimension includes seven variables: (1) who to contact for materials; (2) who to contact for field trips; (3) who to contact for speakers; (4) reported understanding of career education; (5) reported preparation for implementing career education; (6) agreement with the goals of career education; and (7) teachers' perceptions regarding the schools' level of implementation.*

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*The activities were scored as follows: 1 = almost every day; 2 = once a week; 3 = once or twice a month; 4 = less than once a month; 5 = never or does not apply.

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The Value Internalization dimension includes three factor analytically derived attitude dimensions based on responses to forty, four point Likert items. Each of these constructs is scaled to a mean of fifty and a standard deviation of ten.

The first scale, perceived benefits, measures the extent to which teachers perceive that career education will result in benefits to students. High scores indicate a positive attitude toward the potential of career education, whereas low scores indicate a belief that career education promises few benefits to students. The second scale, perceived burden, reflects educators' beliefs that implementing career education is a burdensome undertaking which is not worth the additional work required of educational practitioners. A low score indicates that perceived burden is low. The third scale, role of schools, assesses teachers' attitudes toward the role of the school in implementing career education. High scores indicate that the school should take a positive action-oriented role, whereas low scores on this scale indicate that the respondent believes in a more limited role for schools.

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*The following scales were used for these variables: Who to contact for materials?...field trips?...speakers? 1 = yes; 2 = no. Reported understanding: 1 = full understanding; 2 = partial understanding; 3 = no understanding. Reported preparation: 1 = adequately; 2 = moderately; 3 = slightly; 4 = not prepared. Argument with goals: 1 = Strongly Agree; 2 = agree; 3 = Disagree; and 4 = Strongly Disagree. Level of Implementation: 1 = actively implemented; 2 = approved, but not implemented; 3 = discussed, but no formal position; 4 = considered, but rejected; and 5 = not considered.

section on student exposure. The implementation/process of career education is represented as three dimensions. These are: Knowledge and Understanding, Role/Behavior, and Value Internalization. The summary tables report unique contributions for each of these variable sets and the common or joint contributions. Other than treating the three types of career education activities (classroom, linkage, and extra school activities) as a single set termed "Role/Behavior," the summary tables are identical in form and function.

A major premise of this section is that, if the projects have had effects on educational practitioners (in this case teachers), then these effects should be manifested in increased knowledge and understanding of career education; increased use of career education materials, concepts, principles, and activities; and changed attitudes toward the role of career education in the ongoing instructional process. In other words, the resocialization of educators should result in changes in what they know, what they do, and how they feel.

Table 5.28 presents the differences between fifth grade target and nontarget teachers. One initial point of caution is that the sample size for nontarget teachers is smaller than desirable, and generalizations from the fifth grade results need to be tempered accordingly. Overall fourteen of thirty-nine contrasts(36%) are statistically significant, with all fourteen being in favor of the target group. Two variables under Knowledge and Understanding are significant (reported preparation and agreement with career education

TABLE 5.28

DIFFERENCES BETWEEN TARGET AND NONTARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION

GRADE 5

Item Location	Brief Variable Description	r	F	Target Group N=166		Nontarget Group N=17	
				X̄	SD	X̄	SD
	KNOWLEDGE AND UNDERSTANDING:						
T-11	1. Who to Contact for Materials	−.06	0.7	1.04	0.19	1.00	0.00
T-11	2. Who to Contact for Field Trips	.06	0.8	1.07	0.25	1.12	0.33
T-11	3. Who to Contact for Speeches	.00	0.0	1.06	0.24	1.06	0.24
T-18	4. Reported Understanding	.12	3.2	1.30	0.49	1.53	0.51
T-19	5. Reported Preparation	.17	6.0*	1.72	0.73	2.18	0.81
T-20	6. Agreement with CE Goals	.20	8.3**	1.69	0.83	2.18	0.95
T-17	7. Perceived Level of Implementation	.01	0.0	1.22	0.58	1.24	0.56
	ROLE/BEHAVIOR: **CLASSROOM ACTIVITIES:**						
T-1	1. Basic Skills and CE	.24	11.9**	2.21	1.10	3.18	1.13
T-3	2. Develop CE Curriculum	.12	3.0*	3.85	1.03	4.29	0.85
T-7	3. Simulation	.10	2.0	3.91	1.23	4.35	1.7
T-11	4. Advise Individuals	.01	0.0	3.86	1.29	3.71	1.06
T-15	5. Decision Making	.15	4.4*	3.78	1.35	4.47	0.72
T-16	6. Job Getting	−.09	1.8	4.65	.066	4.41	1.12
T-18	7. CE Tests	.07	0.9	4.46	0.70	4.65	0.70
T-19	8. Reduce Sex Stereotyping	.14	3.8	3.61	1.29	4.24	0.90
T-21	9. Interests and Careers	.15	4.4*	3.74	1.07	4.29	0.77
T-23	10. Use Media	.08	1.3	3.40	1.06	3.71	1.06
T-24	11. Clarify Work Values	.14	3.9	3.17	1.34	3.82	1.01
T-26	12. Attitude Tests	.16	4.5*	4.56	0.62	4.88	0.33
T-27	13. Reduce Race Stereotyping	.13	3.3	4.01	1.18	4.53	0.62
	LINKAGE ACTIVITIES:						
T-4	1. Team with Counselors	−.04	0.3	4.46	0.87	4.36	0.70
T-5	2. CE Resource Center	.07	1.1	3.86	1.20	3.88	0.99
T-8	3. School Staff CE Presentations	.11	2.4	4.35	0.77	4.63	0.61
T-12	4. Team with CE Staff	−.02	0.1	4.24	0.89	4.18	0.73
T-13	5. Career Fair	.09	1.8	4.74	0.63	4.94	0.24
T-14	6. Group Guidance	.04	0.4	4.51	0.89	4.65	0.70
	EXTRA SCHOOL ACTIVITIES:						
T-2	1. Follow-up Field Trips	.16	5.2*	3.72	1.10	4.35	1.06
T-6	2. Educational Placement	−.10	1.6	4.95	0.39	4.82	0.53
T-9	3. Parent Presentations	.16	4.2*	4.16	0.73	4.53	0.62
T-10	4. Business Presentations	.22	10.2**	4.00	0.88	4.53	0.62
T-17	5. Field Trips	.28	16.6*	4.13	0.86	4.71	0.59
T-20	6. Shadowing	.01	0.0	4.69	0.58	4.71	0.59
T-22	7. Occupational Placement	−.08	1.2	4.93	0.38	4.82	0.53
T-25	8. CE Materials for Home Use	.08	1.4	4.57	0.67	4.76	0.66
T-28	9. Work with Parents	.11	2.5	2.88	1.45	3.47	1.29
T-29	10. Part-time Job Placement	−.01	0.0	4.90	0.42	4.88	0.49
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.15	4.9*	51.7	8.9	46.7	10.0
	2. Perceived Burden	.14	4.2*	49.5	9.9	54.5	7.1
	3. Role of Schools	.20	8.7**	52.2	9.8	44.9	8.1

$*p \leq .05$
$**p < .01$

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	7/165	.09	2.99	.01	31%	232
Role/Behavior (u)	29/165	.19	1.52	NS	66%	195
Value Internalization (u)	3/165	.01	.77	NS	3%	1460
Common Contribution		.00			0%	
Total R^2	39/165	.29	1.73	.01	100%	164
Adjusted R^2		.10				

goals); however, it is somewhat surprising to find such small differences on the three "who to contact" variables and the "perceived level of implementation" variable. Under Role/Behavior we find five classroom activities which discriminate between target and nontarget teachers with the activity of integrating basic skills and career education on the top of the list. None of the linkage activities are implemented with greater frequency by either target or nontarget teachers. Under extra school activities, four activities with a field trip emphasis are implemented most frequently by target teachers. Lastly, all three attitude variables significantly favor target teachers. There exists a minimum of one-half standard deviation difference between target and nontarget fifth grade teachers on the three attitude scales, with target teachers anticipating more benefits from career education, perceiving less implementation burden, and projecting a larger role for the schools in implementing career education.

The summary section of Table 5.28 indicates that twenty-nine percent of the group membership variance is explained by the three sets of implementation/process variables. Two-thirds of the explained variance can be uniquely assigned to Role/Behavior and most of the remainder can be uniquely assigned to Knowledge and Understanding. Of some interest is the fact that Knowledge and Understanding, Role/Behavior and Value Internalization are largely uncorrelated among fifth grade teachers. Overall, the results support a conclusion that target teachers engaged in career education-related activities more frequently than nontarget teachers.

Among eighth grade teachers (Table 5.29), the results are not nearly as suggestive of a process effect as are the fifth grade findings. Only five of thirty-nine contrasts (13%) are significant. Within the set of Knowledge and Understanding variables, target teachers perceive that "The concept of career education is being actively implemented," but only three activities provide manifestations of this perception. Target teachers report more frequent use of media in teaching students about careers, more use of career education resource centers, and more discussions following field trips; beyond these activities, however, there is little evidence that eighth grade teachers are actually engaging in career education activities more frequently than their nontarget peers. Scores on the three attitude scales provide additional confirmation that eighth grade target teachers are not much different from eighth grade nontarget teachers. The summary section of Table 5.29 indicates that twenty-four percent of the total variance is explained by the sets of implementation/process variables. Almost sixty percent of the explained variance can be assigned uniquely to Role/ Behavior, and most of the remainder can be uniquely assigned to Knowledge and Understanding. We should, however, keep in mind that most of the contribution made by Knowledge and Understanding emanates from a potentially faulty perception by eighth grade teachers regarding the level of implementation in their respective schools.

TABLE 5.29

DIFFERENCES BETWEEN TARGET AND NONTARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION

GRADE 8

Item Location	Brief Variable Description	r	F	Target Group N=250		Nontarget Group N=28	
				X̄	SD	X̄	SD
	KNOWLEDGE AND UNDERSTANDING:						
T-11	1. Who to Contact for Materials	.14	5.4*	1.04	0.21	1.18	0.37
T-11	2. Who to Contact for Field Trips	.08	2.2	1.10	0.30	1.19	0.40
T-11	3. Who to Contact for Speeches	.10	2.5	1.09	0.29	1.19	0.40
T-18	4. Reported Understanding	−.02	0.1	1.43	0.53	1.39	0.80
T-19	5. Reported Preparation	−.07	1.5	1.96	0.89	1.72	0.98
T-20	6. Agreement with CE Goals	−.00	0.0	1.95	0.94	1.94	0.24
T-17	7. Perceived Level of Implementation	.33	33.5*	1.19	0.54	2.08	1.30
	ROLE/BEHAVIOR:						
	CLASSROOM ACTIVITIES:						
T-1	1. Basic Skills and CE	−.02	0.1	2.94	1.27	2.86	1.32
T-3	2. Develop CE Curriculum	.12	3.6	3.99	1.03	4.38	0.80
T-7	3. Simulation	.06	0.9	4.14	1.26	4.33	1.17
T-11	4. Advise Individuals	.06	0.9	3.28	1.16	3.50	1.14
T-15	5. Decision Making	.01	0.0	3.74	1.15	3.77	1.03
T-16	6. Job Getting	−.07	1.4	4.27	0.94	4.04	1.00
T-18	7. CE Tests	.11	3.1	4.43	0.86	4.73	0.53
T-19	8. Reduce Sex Stereotyping	.03	0.2	3.99	1.26	4.12	1.37
T-21	9. Interests and Careers	−.03	0.2	4.06	0.96	3.96	0.96
T-23	10. Use Media	.14	5.4*	4.08	0.98	4.54	0.71
T-24	11. Clarify Work Values	.03	0.2	3.50	1.32	3.62	1.20
T-26	12. Attitude Tests	.01	0.1	4.54	0.68	4.58	0.70
T-27	13. Reduce Race Stereotyping	−.02	0.2	4.18	1.23	4.08	1.38
	LINKAGE ACTIVITIES:						
T-4	1. Team with Counselors	.05	0.6	4.40	0.85	4.54	0.76
T-5	2. CE Resource Center	.18	8.9*	3.94	1.07	4.58	0.58
T-8	3. School Staff CE Presentations	.01	0.0	4.67	0.60	4.69	0.56
T-12	4. Team with CE Staff	.02	0.2	4.38	0.86	4.46	0.81
T-13	5. Career Fair	−.04	0.5	4.88	0.48	4.81	0.49
T-14	6. Group Guidance	−.02	0.1	4.54	0.79	4.50	0.78
	EXTRA SCHOOL ACTIVITIES:						
T-2	1. Follow-up Field Trips	.14	5.4*	4.34	1.02	4.51	0.40
T-6	2. Educational Placement	.06	1.0	4.75	0.71	4.88	0.33
T-9	3. Parent Presentations	.02	0.1	4.66	0.62	4.69	0.55
T-10	4. Business Presentations	.02	0.1	4.29	0.72	4.35	0.80
T-17	5. Field Trips	.11	3.5	4.54	0.71	4.81	0.40
T-20	6. Shadowing	.03	0.3	4.70	0.70	4.77	0.81
T-22	7. Occupational Placement	−.03	0.3	4.87	0.51	4.81	0.80
T-25	8. CE Materials for Home Use	.02	0.1	4.81	0.75	4.85	0.63
T-28	9. Work with Parents	.07	1.5	3.79	1.27	4.12	1.40
T-29	10. Part-time Job Placement	.02	0.1	4.86	0.50	4.88	0.43
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.01	0.0	49.2	9.6	48.9	11.3
	2. Perceived Burden	.08	2.2	50.8	10.1	53.8	7.6
	3. Role of Schools	.01	0.0	49.6	10.2	50.1	9.6

$*p \leq .05$
$**p < .01$

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	7/238	.08	5.01	.01	33%	232
Role/Behavior (u)	29/238	.14	1.51	NS	58%	249
Value Internalization (u)	3/238	.02	2.09	NS	8%	746
Common Contribution		.00				
Total R^2	39/238	.24	2.03	.01	100%	178
Adjusted R^2		.10				

Table 5.30 gives the differences between eleventh grade target and nontarget teachers. Eleven of the thirty-nine contrasts (28%) are significant and all favor target teachers. Under Knowledge and Understanding, target teachers report higher understanding, better preparation, higher levels of agreement with career education goals, and higher perceived levels of implementation for their schools. Role/Behavior differences include three classroom-based activities, one linkage activity, and two extra school activities. Among the Value Internalization constructs, only "perceived burden" is significant, with target teachers reporting less of an implementation burden than non-target teachers.

Among fifth and eleventh grade teachers, we observe a pattern in the target-nontarget comparisons of differential Knowledge and Understanding, Role/Behavior, and Value Internalization, suggesting that teacher inservice has been an effective resocializing force. The largest process effects were found among fifth grade teachers. Eleventh grade teachers were second, and eighth grade teachers were the least knowledgeable and active of these practitioner groups. It is perhaps no coincidence that student reported exposure to career education follows a pattern quite similar to teacher reported implementation, with eighth grade students reporting the lowest levels of exposure and eighth grade teachers the lowest level of implementation.

TABLE 5.30
DIFFERENCES BETWEEN TARGET AND NONTARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION
GRADE 11

Item Location	Brief Variable Description	r	F	Target Group N=319		Nontarget Group N=68	
				$\bar{X}$	SD	$\bar{X}$	SD
	KNOWLEDGE AND UNDERSTANDING:						
T-11	1. Who to Contact for Materials	.05	1.1	1.02	0.16	1.05	0.21
T-11	2. Who to Contact for Field Trips	.10	3.5	1.06	0.23	1.12	0.33
T-11	3. Who to Contact for Speeches	.06	1.4	1.04	0.20	1.08	0.27
T-16	4. Reported Understanding	.18	12.3**	1.33	0.48	1.64	0.80
T-19	5. Reported Preparation	.17	11.9**	1.90	0.85	2.42	0.94
T-20	6. Agreement with CE Goals	.15	9.1**	1.91	0.77	2.34	1.16
T-17	7. Perceived Level of Implementation	.27	28.9**	1.00	0.36	1.58	1.16
	ROLE/BEHAVIOR:						
	CLASSROOM ACTIVITIES:						
T-1	1. Basic Skills and CE	.03	0.3	2.59	1.29	2.98	1.36
T-3	2. Develop CE Curriculum	.14	8.0**	3.96	1.09	4.35	0.86
T-7	3. Simulation	.07	2.1	3.69	1.64	3.98	1.42
T-11	4. Advise Individuals	.06	1.6	2.81	1.11	3.00	1.05
T-15	5. Decision Making	.04	0.7	3.39	1.27	3.53	1.07
T-16	6. Job Getting	.01	0.0	3.92	1.12	3.96	1.03
T-18	7. CE Tests	.01	0.0	4.37	0.91	4.39	0.96
T-19	8. Reduce Sex Stereotyping	.16	9.7**	4.04	1.13	4.50	0.85
T-21	9. Interests and Careers	.08	2.3	3.95	1.10	4.17	0.81
T-23	10. Use Media	.11	4.4*	4.16	0.90	4.41	0.76
T-24	11. Clarify Work Values	.04	0.7	3.31	1.29	3.48	1.35
T-26	12. Attitude Tests	−.05	1.1	4.55	0.85	4.46	0.73
T-27	13. Reduce Race Stereotyping	.07	1.8	4.19	1.14	4.39	1.08
	LINKAGE ACTIVITIES:						
T-4	1. Team with Counselors	−.01	0.0	4.34	0.79	4.32	0.83
T-5	2. CE Resource Center	.08	2.2	4.01	0.93	4.20	0.98
T-8	3. School Staff CE Presentations	.11	4.7*	4.54	0.89	4.73	0.45
T-12	4. Team with CE Staff	.07	1.9	4.30	0.84	4.48	0.71
T-13	5. Career Fair	−.03	0.5	4.80	0.57	4.74	0.79
T-14	6. Group Guidance	.00	0.0	4.45	0.83	4.45	0.83
	EXTRA SCHOOL ACTIVITIES:						
T-2	1. Follow-up Field Trips	.11	5.0*	4.31	0.88	4.55	0.86
T-6	2. Educational Placement	.06	1.5	3.85	1.01	4.02	0.94
T-9	3. Parent Presentations	.18	13.3**	4.66	0.54	4.91	0.34
T-10	4. Business Presentations	.07	1.9	4.15	0.71	4.29	0.74
T-17	5. Field Trips	.09	2.9	4.42	0.70	4.58	0.56
T-20	6. Shadowing	−.05	0.9	4.53	0.74	4.53	1.06
T-22	7. Occupational Placement	.02	0.1	4.63	0.77	4.67	0.81
T-25	8. CE Materials for Home Use	.07	1.9	4.55	0.73	4.68	0.68
T-28	9. Work with Parents	.05	0.9	4.10	0.98	4.23	1.06
T-29	10. Part-time Job Placement	−.01	0.0	4.41	1.11	4.39	1.22
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.06	1.4	47.7	10.5	48.1	9.0
	2. Perceived Burden	.12	5.8*	51.1	9.6	54.2	8.7
	3. Role of Schools	.04	0.8	48.3	9.8	47.1	10.6

$*p < .05$
$**p < .01$

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	7/347	.07	6.00	.01	37%	262
Role/Behavior (u)	29/347	.11	1.62	.01	58%	306
Value Internalization (u)	3/347	.01	1.43	NS	5%	1458
Common Contribution		.00				
Total R^2	39/347	.19	2.20	.01	100%	214
Adjusted R^2		.09				

Grade Level Variation

Tables 5.31 and 5.32 present the differences between fifth and eighth grade target teachers, and eighth and eleventh grade target teachers, respectively. These results provide insight into the ways teachers at the different grade levels differ in what they know, how they act, and how they feel. In both tables a negative correlation favors the higher grade level.

Differences between fifth and eighth grade target teachers are substantial (see Table 5.31). Under Knowledge and Understanding, fifth grade target teachers report: (1) a fuller understanding of career education, (2) more adequate preparation to implement career education, and (3) higher agreement with career education goals. Under Role/Behavior, sixteen of twenty-nine contrasts significantly discriminate between grade levels, with thirteen of these differences favoring fifth grade teachers. Only three rather obvious activities, "advising individual students about career possibilities," "teaching about job-getting skills," and "assisting students in postsecondary placement," are engaged in more frequently by eighth grade target teachers than fifth grade target teachers. Although the latter two of these three activities are engaged in infrequently by eighth grade target teachers, the difference is sufficiently large to be significant. Under Value Internalization, fifth grade target teachers perceive greater benefits in career education and also believe more strongly that a proper role of the school is preparing students for the world of work.

TABLE 5.31
DIFFERENCES BETWEEN FIFTH AND EIGHTH GRADE TARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION

Item Location	Brief Variable Description	r	F	Grade 5 N=186		Grade 8 N=250	
				$\bar{X}$	SD	$\bar{X}$	SD
	KNOWLEDGE AND UNDERSTANDING:						
T-11	1. Who to Contact for Materials	.02	0.1	1.04	0.18	1.04	0.21
T-11	2. Who to Contact for Field Trips	.06	1.4	1.07	0.25	1.10	0.30
T-11	3. Who to Contact for Speeches	.06	1.6	1.06	0.24	1.09	0.29
T-18	4. Reported Understanding	.11	5.3*	1.32	0.50	1.43	0.53
T-19	5. Reported Preparation	.15	9.8*	1.74	0.73	1.98	0.89
T-20	6. Agreement with CE Goals	.14	8.7*	1.71	0.84	1.86	0.94
T-17	7. Perceived Level of Implementation	−.02	0.1	1.21	0.58	1.19	0.54
	ROLE/BEHAVIOR:						
	CLASSROOM ACTIVITIES:						
T-1	1. Basic Skills and CE	.29	39.7**	2.21	1.10	2.94	1.27
T-3	2. Develop CE Curriculum	.07	1.9	3.85	1.03	3.99	1.02
T-7	3. Simulation	.09	3.5	3.91	1.24	4.14	1.25
T-11	4. Advise Individuals	−.16	10.7**	3.64	1.29	3.28	1.16
T-15	5. Decision Making	−.02	0.1	3.78	1.35	3.74	1.15
T-16	6. Job Getting	−.22	22.4**	4.86	0.85	4.27	0.94
T-18	7. CE Tests	−.03	0.4	4.48	0.70	4.43	0.85
T-19	8. Reduce Sex Stereotyping	.15	9.4**	3.61	1.29	3.99	1.26
T-21	9. Interests and Careers	.15	10.5**	3.74	1.07	4.06	0.95
T-23	10. Use Media	.31	47.4**	3.40	1.06	4.08	0.98
T-24	11. Clarify Work Values	.12	6.6*	3.17	1.34	3.50	1.32
T-26	12. Attitude Tests	−.01	0.1	4.56	0.62	4.54	0.68
T-27	13. Reduce Race Stereotyping	.07	2.2	4.01	1.18	4.18	1.23
	LINKAGE ACTIVITIES:						
T-4	1. Team with Counselors	−.04	0.7	4.46	0.87	4.40	0.85
T-5	2. CE Resource Center	.16	11.9**	3.55	1.29	3.94	1.07
T-8	3. School Staff CE Presentations	.23	24.4**	4.35	0.77	4.67	0.60
T-12	4. Team with CE Staff	.08	2.9	4.24	0.89	4.39	0.85
T-13	5. Career Fair	.13	7.3**	4.74	0.63	4.88	0.48
T-14	6. Group Guidance	.02	0.1	4.51	0.89	4.54	0.79
	EXTRA SCHOOL ACTIVITIES:						
T-2	1. Follow-up Field Trips	.28	35.7**	3.72	1.10	4.34	1.02
T-6	2. Educational Placement	−.17	12.5**	4.95	0.38	4.75	0.71
T-9	3. Parent Presentations	.35	60.4**	4.16	0.73	4.66	0.62
T-10	4. Business Presentations	.20	18.8**	4.00	0.65	4.19	0.72
T-17	5. Field Trips	.30	43.2**	4.13	0.66	4.54	0.71
T-20	6. Shadowing	.00	0.0	4.69	0.58	4.70	0.70
T-22	7. Occupational Placement	−.06	1.8	4.93	0.38	4.87	0.51
T-25	8. CE Materials for Home Use	.03	0.4	4.57	0.67	4.61	0.75
T-28	9. Work with Parents	.32	47.5**	2.86	1.45	3.79	1.27
T-29	10. Part-time Job Placement	−.05	1.0	4.90	0.42	4.86	0.50
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.13	8.0**	51.7	8.94	49.2	9.83
	2. Perceived Burden	.06	1.9	49.5	9.94	50.8	10.13
	3. Role of Schools	.12	6.8**	52.2	9.77	49.6	10.18

$*p < .05$
$**p < .01$

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	7/398	.06	11.95	.01	12%	301
Role/Behavior (u)	29/398	.45	12.87	.01	87%	103
Value Internalization (u)	3/398	.01	2.76	.05	2%	1468
Common Contribution		.00				
Total R^2	39/398	.52	11.66	.01	100%	105
Adjusted R^2		.47				

The summary section of Table 5.31 indicates that fifty-two percent of the total variance can be explained by the three sets of implementation/process variables. Eighty-seven percent of the explained variance can be uniquely assigned to Role/Behavior, with most of the remainder being due to the unique contribution of Knowledge and Understanding. Under the assumptions of a normal distribution and equal sample sizes in the two groups, an $R^2 = .52$ would mean that more than ninety percent of target teachers could be correctly classified into their proper grade levels, presuming we had information similar to that in Table 5.31. Another way of stating this finding is that fifth grade target teachers appear to be considerably better than their eighth grade colleagues at implementing career education activities. This finding holds even after controlling for the fact that some activities are less appropriate at one grade level than another.

Table 5.32 presents the differences between eighth and eleventh grade target teachers' Knowledge and Understanding, Role/Behavior, and Value Internalization. Fourteen of thirty-nine contrasts (36%) are significant, with thirteen of these differences favoring eleventh grade target teachers. Eleventh grade target teachers report having more information about whom to contact for career education speakers, more understanding of career education, and a higher perceived level of implementation than do eighth grade target teachers. In terms of Role/Behavior, eleventh grade target teachers

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TABLE 5.32

DIFFERENCES BETWEEN EIGHTH AND ELEVENTH GRADE TARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION

Item Location	Brief Variable Description	r	F	Grade 8 N=250		Grade 11 N=319	
				X̄	SD	X̄	SD
	KNOWLEDGE AND UNDERSTANDING:						
T-11	1. Who to Contact for Materials	−.06	2.1	1.06	0.21	1.02	0.15
T-11	2. Who to Contact for Field Trips	−.07	3.1	1.10	0.30	1.06	0.23
T-11	3. Who to Contact for Speeches	−.10	5.8*	1.09	0.29	1.04	0.20
T-18	4. Reported Understanding	−.09	5.4*	1.43	0.53	1.33	0.48
T-19	5. Reported Preparation	−.05	1.5	1.98	0.89	1.90	0.86
T-20	6. Agreement with CE Goals	−.02	0.3	1.95	0.94	1.91	0.77
T-17	7. Perceived Level of Implementation	−.11	6.9**	1.19	0.54	1.09	0.36
	ROLE/BEHAVIOR:						
	CLASSROOM ACTIVITIES:						
T-1	1. Basic Skills and CE	−.02	0.2	2.94	1.27	2.89	1.29
T-3	2. Develop CE Curriculum	−.02	0.2	3.98	1.03	3.95	1.09
T-7	3. Simulation	−.16	14.3**	4.14	1.25	3.69	1.54
T-11	4. Advise Individuals	−.20	23.3**	3.28	1.16	2.81	1.11
T-15	5. Decision Making	−.14	11.5**	3.74	1.15	3.39	1.27
T-16	6. Job Getting	−.16	15.1**	4.27	0.94	3.92	1.12
T-18	7. CE Tests	−.03	0.6	4.43	0.88	4.37	0.91
T-19	8. Reduce Sex Stereotyping	−.02	0.3	3.99	1.26	4.04	1.13
T-21	9. Interests and Careers	−.05	1.5	4.06	0.96	3.95	1.10
T-23	10. Use Media	.04	1.0	4.08	0.98	4.16	0.90
T-24	11. Clarify Work Values	−.07	3.0	3.50	1.32	3.31	1.29
T-26	12. Attitude Tests	.00	0.0	4.54	0.66	4.55	0.66
T-27	13. Reduce Race Stereotyping	.00	0.0	4.18	1.23	4.19	1.14
	LINKAGE ACTIVITIES:						
T-4	1. Team with Counselors	−.04	0.7	4.40	0.85	4.34	0.79
T-5	2. CE Resource Center	.03	0.6	3.94	1.07	4.01	0.93
T-8	3. School Staff CE Presentations	−.10	6.1*	4.67	0.60	4.54	0.69
T-12	4. Team with CE Staff	.05	1.4	4.39	0.85	4.30	0.84
T-13	5. Career Fair	.08	3.3	4.88	0.48	4.80	0.57
T-14	6. Group Guidance	−.06	1.8	4.54	0.79	4.45	0.83
	EXTRA SCHOOL ACTIVITIES:						
T-2	1. Follow-up Field Trips	−.02	0.1	4.34	1.02	4.31	0.88
T-6	2. Educational Placement	−.45	140.8**	4.75	0.71	3.85	1.01
T-9	3. Parent Presentations	.00	0.0	4.66	0.63	4.66	0.54
T-10	4. Business Presentations	−.10	5.3*	4.29	0.72	4.15	0.71
T-17	5. Field Trips	−.09	4.3*	4.54	0.71	4.42	0.70
T-20	6. Shadowing	−.04	1.1	4.70	0.70	4.63	0.74
T-22	7. Occupational Placement	−.18	17.9**	4.87	0.51	4.63	0.77
T-25	8. CE Materials for Home Use	−.04	1.1	4.61	0.75	4.55	0.73
T-28	9. Work with Parents	.14	10.7**	3.79	1.27	4.10	0.98
T-29	10. Part-time Job Placement	−.24	35.2**	4.86	0.50	4.41	1.11
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.07	2.8	49.2	9.63	47.7	10.62
	2. Perceived Burden	.01	0.1	50.8	10.14	51.1	9.63
	3. Role of Schools	.07	2.7	49.6	10.18	48.3	9.82

$^{*}p < .05$
$^{**}p < .01$

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	7/531	.04	6.34	.01	12%	438
Role/Behavior (u)	29/531	.29	7.92	.01	88%	140
Value Internalization (u)	3/531	.00	.00	NS	0%	55
Common Contribution		.00				
Total R^2	39/531	.33	7.07	.01	100%	141
Adjusted R^2		.28				

report more frequent use of simulation, more advising of students on career possibilities, more instruction in decision-making skills and job-getting skills, more frequent use of school staff for career education presentations, more assistance in postsecondary placement, more use of business and industry, more field trips, more assistance in occupational placement, more work with parents, and more help in finding parttime work. In short, eleventh grade target teachers engage in a broad range of career education activities more frequently than eighth grade target teachers. We observed no differences between eighth and eleventh grade target teachers on the three Value Internalization variables.

The three sets of implementation/process variables account for thirty-three percent of the total between-grades variance. Eighty-eight percent of the explained variance can be uniquely assigned to Role/Behavior, with the remaining twelve percent being uniquely assigned to Knowledge and Understanding. Eleventh grade target teachers appear to have more Knowledge and Understanding and also Role/Behaviors which are more consistent with career education implementation than eighth grade teachers. We may conclude that the implementation/process of career education is much less mature at the eighth grade level than at either the fifth or eleventh grade levels.

One alternative explanation for the observed grade level differences is that, perhaps, the better implemented projects did not serve eighth grade students, and, thus, the

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grade level differences might be nothing more than somewhat confounded project level differences. We tested this hypothesis and found that, although one of the best implemented projects did not have eighth graders in the evaluation, this factor was insufficient to account for observed grade level variation.

Project Variation

Tables 5.33, 5.34, and 5.35 present differences in fifth, eighth, and eleventh grade target teachers' reported implementation on a project-by-project basis. A positive correlation denotes that teachers in a given project report higher levels of Knowledge and Understanding, Role/Behavior, or Value Internalization than the "average" of teachers in all other projects. A negative correlation means that teachers in a given project report a level of implementation that is significantly below the average of all other teachers.* Only those correlations which are statistically significant (p<.05) are reported in the tables. A blank column means that teachers were not involved in that grade level for that project.

Among the thirteen projects serving fifth grade students, the interproject differences are sporadic and small. Only thirteen percent of possible contrasts are significant, and many of these appear isolated and without confirming support.

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*We will use the term "average" in this section to refer to the arithmetic average of all target teachers in the other projects.

TABLE 5.33
PROJECT BY PROJECT DIFFERENCES IN TARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION*
GRADE 5

Item ocation	Brief Variable Description	PROJECTS Jobland (N=27)	Workville (N=12)	Tradeville (N=5)	[illegible] (N=0)	Voc. Beach (N=7)	Un. Domain (N=6)	Mt. Explor. (N=11)	Propcon (N=6)	Study Tr. (N=27)	Cog.Comp (N=16)	Bnt. Springs (N=0)	Middlesex (N=6)	Career City (N=22)	Opp. City (N=11)	Falloff (N=12)
	KNOWLEDGE AND UNDERSTANDING:															
11	1. Who to Contact for Materials		–.29													
11	2. Who to Contact for Field Trips		–.19													
11	3. Who to Contact for Speakers		–.21													
18	4. Reported Understanding															
19	5. Reported Preparation					.16		.14								
20	6. Agreement with CE Goals					.22										–.21
17	7. Perceived Level of Implementation						–.30			–.24						
	ROLE/BEHAVIOR: **CLASSROOM ACTIVITIES:**															
	1. Basic Skills and CE		–.15													
3	2. Develop CE Curriculum	–.21		.20				.27								
7	3. Simulation							.18								
11	4. Advise Individuals					.21										
15	5. Decision Making		–.21								.15					
16	6. Job Getting															
18	7. CE Tests					.18			.21							
19	8. Reduce Sex Stereotyping									.15						
21	9. Interests and Careers														.17	
23	10. Use Media						–.20									
24	11. Clarify Work Values		–.18													
25	12. Attitude Tests								.22	–.21					.16	
27	13. Reduce Race Stereotyping									.15				–.15		
	LINKAGE ACTIVITIES:															
	1. Team with Counselors			.38												
	2. CE Resource Center			.20												
	3. School Staff CE Presentations							.15		–.17						
12	4. Team with CE Staff	–.14		.20		.15							.17			–.16
13	5. Career Fair					.19							.18	.19		
14	6. Group Guidance							.18	.21							
	EXTRA SCHOOL ACTIVITIES:															
2	1. Follow-up Field Trips			.17		.24							.17			
	2. Educational Placement					.27										
	3. Parent Presentations							.18			–.20			–.19		
10	4. Business Presentations					.22		.17					.15			
17	5. Field Trips					.15		.18		–.18						
20	6. Shadowing							.20								
22	7. Occupational Placement															
25	8. CE Materials for Home Use									.15						
28	9. Work with Parents	–.16								.27	.20			.21		
29	10. Part-time Job Placement							.20								
	VALUE INTERNALIZATION:															
	1. Perceived Benefits	–.20	.15												.16	
	2. Perceived Burden													–.21	–.15	
	3. Role of Schools													.22		

SUMMARY BY VARIABLE SET

Variable Set	PROJECT 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Knowledge and Understanding (u)	.06	.13	.01		.05	.08	.02	.07	.03	.05		.01	.03	.04	.09
Role/Behavior (u)	.20	.14	.21		.26	.10	.20	.27	.29	.22		.16	.25	.20	.15
Value Internalization (u)	.04	.04	.02		.01	.02	.01	.03	.01	.00		.02	.02	.02	.02
Common Contribution	.00	.00	.01		.02	.04	.01	.00	.04	.01		.01	.09	.00	.00
Total R^2	.27	.31	.25		.34	.24	.26	.38	.37	.28		.20	.39	.27	.26
Adjusted R^2	.05	.10	.02		.14	.01	.03	.19	.18	.06		–.05	.21	.04	.03

nly those differences significant (two-tailed F test) at the .05 level or better are included.

blank column indicates no appropriate respondents were included.

If we adopt an admittedly arbitrary criterion of at least five significant differences in a consistent direction, before attaching practical significance to project differences, then only four projects stand out as clearly distinct from the rest. Fifth grade target teachers in Workville evidence lower implementation levels than other projects, whereas fifth grade target teachers in Treksville, Vocation Beach, and Mt. Exploration demonstrate relatively high levels of implementation. Project differences on the three Value Internalization variables are virtually nonexistent.

Among the fourteen projects which served eighth grade students,* six projects, relatively speaking, evidence high implementation, whereas only one project averages markedly lower implementation levels (see Table 5.34). If we adopt the same criterion applied at the fifth grade level, then Treksville, Vocation Beach, Mt. Exploration, Studytown, Middlesex, and Opportunity City all evidence implementation levels that significantly exceed the average. Only one project, Fallstaff, demonstrates markedly lower levels of implementation. We should point out that within any group of projects, whatever their success at implementation, there will be some that outperform others and some that do poorly.

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*Note that Treksville provided eighth grade teachers, but no eighth grade students completed the Student Information Form; Middlesex's teachers of grade nine students also were included in there grade eight analyses, as they also work with eighth grade students.

TABLE 5.34
PROJECT BY PROJECT DIFFERENCES IN TARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION*
GRADE 8

Brief Variable Description	PROJECTS														
	Jobland (N=[illegible])	Workville (N=[illegible])	[illegible] (N=[illegible])	[illegible] (N=[illegible])	Voc. Explo. (N=[illegible])	Un. Domain (N=[illegible])	Mt. Explor. (N=12)	Prepton (N=18)	Study Tr. (N=[illegible])	Cog. Comp (N=16)	[illegible] Springs (N=[illegible])	[illegible] (N=[illegible])	Career City (N=16)	Opp. City (N=[illegible])	[illegible] (N=[illegible])
KNOWLEDGE AND UNDERSTANDING:															
1. Who to Contact for Materials		-.22													
2. Who to Contact for Field Trips		-.13													
3. Who to Contact for Speeches		-.13													
4. Reported Understanding			.20							.13	-.19		-.14		
5. Reported Preparation			.21					.13			-.22			.13	-.14
6. Agreement with CE Goals		-.16	.13					.16			-.16		-.18		
7. Perceived Level of Implementation	.13	-.16	.29						.24						-.23
ROLE/BEHAVIOR:															
CLASSROOM ACTIVITIES:															
1. Basic Skills and CE	.13						.20				-.17				-.12
2. Develop CE Curriculum							.16		.13		-.13				-.13
3. Simulation			.18												
4. Advise Individuals			.23		.16						-.19	.19		.22	
5. Decision Making			.21		.20						-.18	.17		.16	
6. Job Getting			.13		.17		.16				-.13		-.13		-.13
7. CE Tests	-.17		.16		.15										
8. Reduce Sex Stereotyping			.15											.18	
9. Interests and Careers											-.13				
10. Use Media			.20								-.16	.13		.13	
11. Clarify Work Values	-.13		.16												
12. Attitude Tests					.13					.16					
13. Reduce Race Stereotyping			.17						.13						-.13
LINKAGE ACTIVITIES:															
1. Team with Counselors			.17								.18	.23			
2. CE Resource Center												.13		.14	
3. School Staff CE Presentations														.16	-.14
4. Team with CE Staff		-.12	-.29					-.4		.13				.16	-.20
5. Career Fair														.19	
6. Group Guidance			.13							.14	-.13	.17			
EXTRA SCHOOL ACTIVITIES:															
1. Follow-up Field Trips			.31			.13					-.16				-.18
2. Educational Placement												.17		.13	
3. Parent Presentations														.19	-.12
4. Business Presentations			.30								-.21				-.17
5. Field Trips											-.21			.17	-.12
6. Shadowing			.19											.38	
7. Occupational Placement									.15					.13	
8. CE Materials for Home Use	-.14								.14			.14		.15	
9. Work with Parents			.17			.16									
10. Part-time Job Placement														.22	
VALUE INTERNALIZATION:															
1. Perceived Benefits			.23				.18				-.14				-.27
2. Perceived Burden															-.19
3. Role of Schools	-.14		.15				.13	.12			-.14				-.14

SUMMARY BY VARIABLE SET

Variable Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Knowledge and Understanding (u)	.03	.10	.01		.03	.01	.04	.06	.07	.04	.05	.03	.06	.02	.05
Role/Behavior (u)	.13	.10	.34		.22	.09	.18	.13	.11	.19	.15	.21	.12	.24	.13
Value Internalization (u)	.03	.02	.00		.03	.01	.01	.02	.02	.00	.02	.00	.00	.02	.04
Common Contribution	.00	.00	.08		.01	.02	.03	.01	.02	.03	.08	.00	.00	.01	.05
Total R^2	.19	.20	.43		.28	.12	.26	.22	.21	.26	.23	.23	.19	.28	.26
Adjusted R^2	.03	.04	.32		.13	.06	.11	.06	.05	.11	.13	.07	.02	.13	.11

y those differences significant (two-tailed F test) at the .05 level or better are included.

lank column indicates no appropriate respondents were included.

This type of analysis identifies the high and low implementation projects relative to the overall average (computed on the remaining projects). We have already observed that there are fewer target-nontarget differences in student exposure at the eighth grade level than at the fifth and eleventh grade levels. Given that a similar pattern emerged for reported implementation by target and nontarget teachers, we are safe in concluding that, overall, some projects have higher teacher reported implementation at the eighth grade level than some other projects, but relative to the other grade levels, the implementation is poor.

Table 5.35 gives the project-by-project* differences in eleventh grade target teachers' Knowledge and Understanding, Role/Behavior, and Value Internalization. Three projects show at least five significant contrasts favoring exemplary implementation. They are: Treksville, Mt. Exploration, and Cognitive Camp. Three projects evidence lower than average implementation. They are: Studytown, Better Springs, and Fallstaff. Overall, only fourteen percent of the contrasts are significant; however, the pattern of effects is quite uniform.

Project variation in teacher reported implementation closely parallels project variation in white students' reported exposure. Table 5.36 summarizes the relationships between teacher reported implementation and white students' reported exposure. Aggregating results across the three

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*Teachers serving tenth grade students in Middlesex have been included in this table, as they also work with eleventh graders.

TABLE 5.36
PROJECT BY PROJECT DIFFERENCES IN TARGET TEACHERS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION*
GRADE 11

Item Location	Brief Variable Description	Jobland (N=22)	Workville (N=44)	Tradeville (N=19)	Awaresville (N=27)	Vac. Beach (N=15)	Un. Domain (N=4)	Mt. Explor. (N=12)	Progress (N=18)	Study Tr. (N=11)	Cog. Camp (N=17)	Bot. Springs (N=63)	Middlesex (N=8)	Career City (N=15)	Opp. City (N=6)	Falstaff (N=22)
	KNOWLEDGE AND UNDERSTANDING:															
T-11	1. Who to Contact for Materials		−.19													
T-11	2. Who to Contact for Field Trips		−.22													
T-11	3. Who to Contact for Speeches		−.15													
T-18	4. Reported Understanding															
T-19	5. Reported Preparation										.14					
T-20	6. Agreement with CE Goals															
T-17	7. Perceived Level of Implementation										.15					
	ROLE/BEHAVIOR:															
	CLASSROOM ACTIVITIES:															
T-1	1. Basic Skills and CE						.14					−.13				
T-3	2. Develop CE Curriculum										.21	−.15		.13		
T-7	3. Simulation															
T-11	4. Advise Individuals			.11		.11						−.13				−.13
T-15	5. Decision Making			−.11				.11			.11	−.11				−.11
T-16	6. Job Getting			−.18						−.12	.11			−.11		
T-18	7. CE Tests						.11									
T-19	8. Reduce Sex Stereotyping			−.16								−.12				
T-21	9. Interests and Careers			.13								−.12				
T-23	10. Use Media			.19			.18	.11		−.12		−.13				
T-24	11. Clarify Work Values			.12			.16					.16		−.13		
T-26	12. Attitude Tests									−.13						
T-27	13. Reduce Race Stereotyping			−.11		.13						−.16				
	LINKAGE ACTIVITIES:															
T-4	1. Team with Counselors									−.11	.17	−.24	.21			
T-5	2. CE Resource Center															
T-8	3. School Staff CE Presentations							.18								
T-12	4. Team with CE Staff			.20							.20	−.20	.19			
T-13	5. Career Fair												.11			
T-14	6. Group Guidance										.31					−.13
	EXTRA SCHOOL ACTIVITIES:															
T-2	1. Follow-up Field Trips			.13		.15				−.11		−.14				
T-6	2. Educational Placement														.16	
T-9	3. Parent Presentations							.34				−.14		.16		
T-10	4. Business Presentations			.13		−.11		.18			.15	−.21				
T-17	5. Field Trips			.28												
T-20	6. Shadowing	.11										−.16		.15		
T-22	7. Occupational Placement								−.11							
T-25	8. CE Materials for Home Use							.11								
T-28	9. Work with Parents															
T-29	10. Part-time Job Placement							−.15				.11				
	VALUE INTERNALIZATION:															
	1. Perceived Benefits	.14									.14	−.12				−.20
	2. Perceived Burden				.20										−.15	
	3. Role of Schools														.11	−.20

SUMMARY BY VARIABLE SET

Variable Set	PROJECT 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Knowledge and Understanding (u)	.02	.06	.00	.00	.02	.04	.02	.02	.01	.02	.02	.01	.04	.01	.03
Role/Behavior (u)	.10	.08	.21	.07	.15	.16	.19	.09	.08	.28	.14	.14	.17	.12	.07
Value Internalization (u)	.02	.01	.01	.04	.00	.02	.02	.00	.00	.01	.02	.00	.02	.03	.03
Common Contribution	.01	.01	.01	.03	.00	.01	.03	.00	.02	.01	.04	.01	.00	.00	.02
Total R^2	.14	.17	.23	.14	.17	.23	.24	.12	.11	.32	.22	.17	.22	.16	.17
Adjusted R^2	.00	.04	.11	.01	.04	.11	.12	.02	.03	.21	.10	.04	.10	.03	.04

*Only those differences significant (two-tailed F test) at the .05 level or better are included.
A blank column indicates no appropriate respondents were included.

Table 5.36

Relationship Between Teacher Reported Implementation and White Students' Reported Exposure

STUDENT REPORTED EXPOSURE	Teacher Reported Implementation*		
	High	Low	Mixed
High	Treksville (43) Mt. Exploration (37) Middlesex (18)		Jobland (71)
Low		Workville (62) Better Springs (124) Fallstaff (60)	Studytown (76) Career City (52) Opportunity City (2 Unique Domain (15)
Mixed	Cognitive Camp (38) Vocation Beach (29)		Awaresville (37) Prepton (45)

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*Number of target teachers with usable process data is given in parentheses.

grade levels, we find three out of five projects which are high on teacher reported implementation are also high on student reported exposure, with the other two evidencing mixed results. All three of the projects scoring low on teacher reported implementation also are low on student reported exposure. Two of seven projects which scored mixed on teacher reported implementation also scored mixed on student exposure, whereas three of the seven scored low, and two scored high on student exposure. Overall, this is a rather striking piece of confirmation for a process effect on teachers. Furthermore, this process effect appears to have translated into an effect on white students substantial enough for those students to report a difference in their educational experiences.

Table 5.37

Relationship Between Teacher Reported Implementation and Black Students' Reported Exposure

	Teacher Reported Implementation		
	High	Low	Mixed
High	Treksville (43) Vocation Beach (29) Mt. Exploration (37)		
Low			
Mixed	Cognitive Camp (38)		Jobland (71) Unique Domain (15) Prepton (45) Studytown (76)

Table 5.37 contrasts teacher reported implementation and black students' reported exposure. Three of four projects with high teacher reported implementation also evidence high student reported exposure. None of the projects that showed low teacher reported implementation had enough black students to enter the analysis. Of the four projects reporting mixed results for teacher implementation all four evidenced mixed results for black students' reported exposure to career education. Thus, again, we observe some confirmation for the conclusion that level of teacher reported implementation is related to level of student reported exposure to career education activities.

Relationships Between Fifth Grade Teacher Reported Implementation and Fifth Grade Student Reported Exposure

In keeping with out multi-method approach to data analysis, this section examines the relationship between fifth grade teacher reported implementation and fifth grade student reported exposure to career education, using a canonical redundancy model. In the previous section we observed consistent relationships between teacher reported implementation and student reported exposure aggregated at the project level, i.e., projects with teachers reporting high levels of implementation also had students reporting high levels of exposure. This section provides a gross validation, of sorts, of the observed project level relationship between implementation and exposure.

For reasons which we explicate in Chapter 6, global analyses which do not consider ethnicity and project membership may misrepresent relationships among variables. We were fully cognizant of these potential confounding effects but elected to conduct a classroom level analysis across projects, since a within-projects analysis employing classroom as the unit of analysis (due to degrees of freedom limitations) would have been futile.

The model used in this investigation was canonical redundancy analysis. Teacher reported implementation (operationalized with fourteen activity variables) was correlated with classroom averages of student reported exposure (operationalized with fifteen activities similar to those reponded to by teachers). We hypothesized that a canonical correlation analysis would yield some number of canonical variates, each of which would load similar activities in the teacher and student variable sets. Thus if the first canonical variate was highly correlated with "business presentations" on the teacher side then we would expect that the student variable "listen to workers" would correlate highly with the first canonical variate.

Through an examination of the variables which are correlated with each of the canonical variates we can describe the congruence between fifth grade teacher reported implementation and fifth grade student reported exposure. However, unlike regression analysis, the squared canonical correlation does not provide a very useful index of the overall relationship between teacher implementation and student exposure. Because a canonical variate accounts for only a portion of the total variance in its respective set of variables and, because this portion is not necessarily equal in the two sets, interpretation of the canonical correlation coefficient requires knowledge of how much variance the two canonical variates extract from this respective sets (see p. 2.88).

Table 5.37a gives the results from a canonical redundancy analysis of teacher reported implementation and student reported exposure using classroom as the unit of analysis. Canonical redundancy analysis is too new for there to be well-accepted conventions regarding what constitutes a low, moderate, or high redundancy statistic. We are of the opinion that these results suggest a low to moderate level of congruence between teacher implementation and student reported exposure. This conclusion is supported by the pattern of variables that correlate highly with each canonical variate. For

Table 5.37a

Results from a Canonical Redundancy Analysis of Fifth Grade Teacher Reported Implementation and Fifth Grade Student Reported Exposure (Unit of Analysis: Classroom)

TEACHER						STUDENT
Key Items* (loadings)	R^2	R_{dy}	Rc^2	R_{dx}	R^2	Key Items* (loadings)
10(.82),2(.61),13(.54)	.128	.029	.224	.033	.146	7(.66),12(.60),10(.56)
9(.41),17(-.40),18(-.38)	.050	.010	.194	.013	.067	11(-.45),7(-.43),13(.37)
5(.68),24(.45),1(.42)	.103	.017	.169	.014	.085	8(.73),1(.48),9(.32)
1(.51),9(.37),18(.30)	.057	.006	.113	.005	.048	9(.60),15(-.35),4(.25)
18(.46),13(-.42),21(.35)	.046	.004	.091	.005	.056	6(-.46),1(-.41),12(.40)
7(-.45),25(-.42),23(-.40)	.059	.004	.075	.006	.075	10(-.54),9(-.44),15(-.43)
41(-.32),17(-.31),13(-.26)	.030	.002	.052	.003	.061	15(.49),1(-.39),13(.30)
19(-.42),9(-.39),7(-.32)	.049	.002	.036	.003	.081	14(-.51),2(.48),19(-.39)
		.074		.082		

R^2 = Portion of variance extracted from the set by the respective canonical variate
Rdy = Redundancy of Teacher canonical variate with student reported exposure
R_{dx} = Redundancy of student canonical variate with teacher reported implementation
Rc^2 = Squared canonical correlation

*The item numbers are those used on the Teacher Survey Form and the Student Information Form for the respective sets.

example, the first canonical variate loads "business Presentations" on the teacher side and "listen to workers" on the student side. The second variate loads "parent presentations" on the teacher side and "listen to other parents" on the student side. The third variate loads "career education resource centers" on the teacher side and "use library" on the student side. Although canonical variables four through eight show some logical congruence, the variance explained by these latter variates becomes, practically speaking, insignificant.

In summary, we believe that this canonical redundancy analysis, fraught as it is with difficulties, provides support for our earlier contention that teacher reported implementation is moderately related to student reported exposure. We also believe that this type of analysis is absolutely essential if future evaluations hope empirically to link aspects of program implementation with student exposure to treatment.

Determinants of Teacher Reported Implementation

This section presents an analysis of the determinants of teacher reported implementation (target teachers only). The effects of our sets of determinants (teacher characteristics, teaching context, organizational capacity, and adoption strategy) on seven measures of the implementation/process of career education are examined. The seven implementation/process measures used in this section are linear composites of the now familiar knowledge and understanding, classroom activities, linkage activities, extra school activities, perceived benefits of career education, perceived burden of career education, and role of school variables. The regression/commonality procedure is employed to partition the explained variance in each implementation/process measure into that portion that is uniquely attributable to each set of determinants and that which is confounded among the sets. The overriding purpose of these analyses is to provide insight into why some teachers report higher levels of implementation than do other teachers. If determinants which explain large portions of implementation variance are under project control (e.g., hours of inservice), then projects can presumably manipulate these determinants to improve the quality of implementation.

Table 5.38 presents the relationships between fifth grade target teachers' reported implementation and four sets of determinants. The determinants taken together account for a significant amount of variance in four of the seven process measures: composite knowledge, classroom activities, perceived benefits, and perceived burden. Adoption strategy makes the only substantial unique contribution in explaining process measure variation; it accounts for between fifty-two and seventy-two percent of the total variance explained by the model. The other three sets of determinants (staff characteristics, teaching context, and organizational capacity) make little unique contribution and, given the small common contributions, it is apparent that these three sets of determinants are of little consequence in explaining variation

TABLE 5.38

RELATIONSHIPS BETWEEN DETERMINANTS OF IMPLEMENTATION AND SEVEN PROCESS VARIABLES†

GRADE 5 TEACHERS (N=186)

Determinants of Implementation	Variable Descriptions	Knowledge and Understanding	Role/Behavior			Value Internalization		
		Composite Knowledge	Classroom Activities	Linkage Activities	Extra School Activities	Perceived Benefits	Perceived Burden	Role of School
Staff Characteristics (u)	Age, Sex, Race Counseling Experience Assistant Principal Experience Principal Experience LEA Administrator Experience Other Education Work Experience Number Years Teaching Experience Highest Degree Held Degree Worked Toward Number Occupations Prepared for Number Occupations Employed in Employment Status Parttime Summer Job Parttime Evening Job Parttime Weekend Job	.02	.03	.06	.05	.03	.02	.04
Teaching Context (u)	Number Students Assigned Subject Area Number Hours Planning Time	.03	.00	.02	.04	.01	.01	.01
Organizational Capacity (u)	Staff Morale School Effectiveness–Basic Skills School Effectiveness–Work Habits School Effectiveness–Work Values School Effectiveness–Job Seeking School Effectiveness–Decision Making School Effectiveness–Continuing Education School Effectiveness–Placement School Effectiveness–Self-Awareness	.03	.06	.03	.01	.02	.00	.01
Adoption Strategy	Number Hours CE Staff Development CE Concepts Staff Development CE Teaching Staff Development CE Curriculum Staff Development CE Counseling Staff Development CE Evaluation Staff Development CE Using Community Staff Development CE Parent Involvement Staff Development CE Other Staff Development	.23***	.16**	.11**	.05	.11**	.12**	.06
Common Contribution		.01	.02	.03	.01	.04	.04	.02
	Total R^2	.32**	.27**	.18	.16	.21*	.22*	.14
	Adjusted R^2 Adjusted R2	.20	.14	.03	.01	.06	.08	.00

†Significance tested with two-tailed F test

$* < .05$ $** < .01$ $*** < .001$

in the implementation/process of career education at the fifth grade level.

Within the adoption strategy set, three variables stand out as consistently important predictors of composite knowledge. These variables and their simple correlations with composite knowledge (these correlations are not given in the Table 5.38) include number of hours inservice (r's of .19 to .23), inservice emphasis on career education concepts (r's of .30 to .34), and inservice emphasis on career education teaching techniques (r's of .16 to .39). Thus, both the quantity and quality of inservice activity appear to be important determiners of fifth grade teachers reported implementation.

Among eighth grade target teachers, the determinants of implementation differ somewhat from the pattern observed at the fifth grade level. First of all, the results in Table 5.39 do not show a consistent pattern of effects for the adoption strategy set. Although the overall R^2s for composite knowledge, classroom activities, linkage activities and extra school activities are all significant ($p<.05$), explaining an average of one-third of the process measure variance, the dominant set of determinants varies between adoption strategy and staff characteristics, depending upon the process measure. The major set of determinants for composite knowledge is clearly adoption strategy. The major contributing variables within this set are number of hours inservice (r = .24*),

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*Again we note that the simple correlations reported in the text are not presented in their respective tables.

TABLE 5.39

RELATIONSHIPS BETWEEN DETERMINANTS OF IMPLEMENTATION AND SEVEN PROCESS VARIABLES†

GRADE 8 TEACHERS (N=250)

Determinants of Implementation	Variable Descriptions	Knowledge and Understanding	Role/Behavior			Value Internalization		
		Composite Knowledge	Classroom Activities	Linkage Activities	Extra School Activities	Perceived Benefits	Perceived Burden	Role of School
Staff Characteristics (u)	Age, Sex, Race Counseling Experience Assistant Principal Experience Principal Experience LEA Administrator Experience Other Education Work Experience Number Years Teaching Experience Highest Degree Held Degree Work Toward Number Occupations Prepared for Number Occupations Employed in Employment Status Parttime Summer Job Parttime Evening Job Parttime Weekend Job	.08	.18*	.10	.17**	.12	.00	.13
Teaching Context (u)	Number Students Assigned Subject Area Number Hours Planning Time	.01	.02	.04	.03	.01	.01	.00
Organizational Capacity (u)	Staff Morale School Effectiveness–Basic Skills School Effectiveness–Work Habits School Effectiveness–Work Values School Effectiveness–Job Seeking School Effectiveness–Decision Making School Effectiveness–Continuing Education School Effectiveness–Placement School Effectiveness–Self-Awareness	.07	.04	.05	.04	.04	.06	.06
Adoption Strategy (u)	Number Hours CE Staff Development CE Concepts Staff Development CE Teaching Staff Development CE Curriculum Staff Development CE Counseling Staff Development CE Evaluation Staff Development CE Using Community Staff Development CE Parent Involvement Staff Development CE Other Staff Development	.15**	.07	.08	.04	.05	.06	.02
Common Contribution		.08	.04	.02	.05	.03	.05	.07
	Total R^2	.30***	.35***	.28*	.33**	.25	.28	.28
	Adjusted R^2	.10	.03	.00	.02	.00	.00	.00

†Significance tested with two-tailed F test.

$*<.05$ $**<.01$ $***<.001$

inservice on career education teaching techniques (r = .35), inservice on available curriculum materials (r = .27), and inservice on using community resources in career education (r = .29).

The staff characteristics determinant set explains a nonsignificant eight percent of the composite knowledge variance, and organizational capacity uniquely accounts for an additional seven percent. Within the staff characteristics set, older teachers report more composite knowledge (r = .11), as do teachers with prior preparation for occupations outside education (r = .19) and work experience outside education (r = .12). Within the organizational capacity set, only one variable, staff morale (r = .13), approaches practical significance.

The level of classroom activities is best explained by the staff characteristics set. Within this set older teachers report higher implementation (r = .11), white teachers report lower implementation (r = .22) than black (r = .15), and, again, teachers with prior preparation for occupations outside education report more frequent implementation (r = .22). The level of linkage activity implementation is not as well explained as classroom activities; however, four familiar variables appear again as the best predictors: number of hours inservice (r = .26), inservice on career education curriculum (r = .22), inservice on career education counseling techniques (r = .20), and staff morale throughout the school (r = .19). Fifty percent of the explained variance in extra school activities can be uniquely assigned to staff characteristics. Within this set, prior preparation for work other than education (r = .21), prior employment outside of education (r = .17), teacher ethnicity (black, r = .12; white, r = .12), teacher age (r = .11), and prior experience as a counselor (r = -.36) contribute to the set's predominance as a determinant of extra school activities.

Table 5.40 presents the results for grade eleven target teachers. Adoption strategy and organizational capacity combine to account for twenty-two percent of the composite knowledge variance. Within the adoption strategy set, inservice on career education instructional techniques (r = .35), number of inservice hours (r = .28), inservice on career education evaluation strategies (r = .27), and inservice on career education curriculum (r = .25) all make significant contributions. Within the organizational capacity set, morale is unimportant (r = .03), but perceived level of school success in attaining selected learner objectives makes an important contribution to the prediction of composite knowledge. Overall, forty-one percent of the variance in composite knowledge can be explained by the four sets of determinants.

Implementation level for classroom activities and extra school activities can be partially explained with the four sets of determinants. In both cases, teaching context is an important contributor to explaining implementation variance. and number of students is negatively correlated with reported

TABLE 5.40

RELATIONSHIPS BETWEEN DETERMINANTS OF IMPLEMENTATION AND SEVEN PROCESS VARIABLES†

GRADE 11 TEACHERS (N=319)

Determinants of Implementation	Variable Descriptions	Knowledge and Understanding	Role/Behavior			Value Internalization		
		Composite Knowledge	Classroom Activities	Linkage Activities	Extra School Activities	Perceived Benefits	Perceived Burden	Role of School
Staff Characteristics (u)	Age, Sex, Race Counseling Experience Assistant Principal Experience Principal Experience LEA Administrator Experience Other Education Work Experience Number Years Teaching Experience Highest Degree Held Degree Work Toward Number Occupations Prepared for Number Occupations Employed in Employment Status Parttime Summer Job Parttime Evening Job Parttime Weekend Job	.13	.13	.09	.09	.07	.07	.09
Teaching Context (u)	Number Students Assigned Subject Area Number Hours Planning Time	.01	.11***	.01	.08*	.04*	.02	.01
Organizational Capacity (u)	Staff Morale School Effectiveness—Basic Skills School Effectiveness—Work Habits School Effectiveness—Work Values School Effectiveness—Job Seeking School Effectiveness—Decision Making School Effectiveness—Continuing Education School Effectiveness—Placement School Effectiveness—Self-Awareness	.08**	.04	.03	.02	.03	.07	.03
Adoption Strategy (u)	Number Hours CE Staff Development CE Concepts Staff Development CE Teaching Staff Development CE Curriculum Staff Development CE Counseling Staff Development CE Evaluation Staff Development CE Using Community Staff Development CE Parent Involvement Staff Development CE Other Staff Development	.14**	.04	.06	.05	.10**	.10**	.08*
Common Contribution		.05	.05	.03	.08	.05	.02	.03
	Total R^2	.41**	.37**	.22	.33**	.28**	.24	.24
	Adjusted R^2	.24	.19	.01	.14	.09	.03	.03

†Significance tested with two-tailed F test.

$* < .05$ $** < .01$ $*** < .001$

implementation (r = -.30). Staff characteristics is the second most important set of determinants, it uniquely accounts for thirteen percent of the classroom activities variance and nine percent of the extra school activities variance. Within the staff characteristics set, prior preparation for work outside education (r = .26) and previous work experience outside education (r = .21) are the most important predictors. Within the adoption strategies set, number of hours inservice and the several types of inservice are again salient predictors (ranging from r = .16 to r = .27). These same adoption strategy variables figure prominently in predicting both perceived benefits and perceived burden.

In summary, the four sets of determinants are related to variance in teacher reported implementation. The most consistently predictable process measure was composite knowledge, with classroom activities, extra school activities, and linkage activities following close behind. The Value Internalization scales were less predictable, although in several cases the determinants explained upwards of twenty-five percent of total variance. It was heartening to observe that adoption strategy was consistently an important factor in explaining variance in implementation. The finding that "morale" was important at selected grade levels, for selected process measures, provides partial confirmation of findings from the RAND change agent studies (Berman and McLaughlin, 1975). The relationships of prior work experience and training in occupations other than education with implementation were perhaps the most intriguing finding of these analyses.

It appears that the level of implementation of career education is strongly dependent upon frequency and type of inservice education. Teachers receiving more inservice know more about career education, implement career education activities more frequently, and occasionally even manifest more positive attitudes toward career education's potential and ease of implementation.

Counselor Reported Implementation of Career Education

During April and May of 1977, target (N=126) and nontarget (N=13) counselors completed a battery very similar to the one completed by teachers. In addition to parallel background and contextual information, counselors were requested to report on the frequency with which they engaged in a broad range of career education related activities. This section examines differences between target and nontarget counselors and differences among projects. Because of small sample sizes, the counselor data have been aggregated into a single grade-level group. The variable classifications closely parallel those employed in the previous section on teacher reported implementation.

Target-Nontarget Differences

Table 5.41 presents the differences between target and nontarget counselors' Knowledge and Understanding, Role/Behavior, and Value Internalization. Again we must caution the reader

TABLE 5.41

DIFFERENCES BETWEEN TARGET AND NONTARGET COUNSELORS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION

Item Location	Brief Variable Description	r	F	Target Group N=119		Nontarget Group N=13	
				X̄	SD	X̄	SD
	KNOWLEDGE AND UNDERSTANDING:						
C-13	1. Perceived Level of Implementation	.39	22.8**	1.19	0.82	2.17	1.11
C-14	2. Reported Understanding	.13	2.4	1.14	0.35	1.31	0.48
C-15	3. Reported Preparation	.10	1.3	1.47	0.64	1.69	0.85
C-16	4. Agreement with CE Goals	.19	4.9*	1.58	0.49	1.92	0.64
	ROLE/BEHAVIOR						
	STUDENT COUNSELING:						
C-5	1. Advise Students on Careers	–.01	0.0	1.90	1.15	1.85	1.34
C-8	2. Group Guidance	–.11	1.6	3.51	1.17	3.08	1.38
C-9	3. Career Decisions	–.09	1.1	2.66	1.37	2.23	1.48
C-10	4. Job Seeking/Getting	–.09	1.1	3.75	1.19	3.38	1.19
C-12	5. CE Tests	–.14	2.6	4.11	0.88	3.69	0.95
C-13	6. Reduce Sex Stereotyping	–.19	4.7*	4.16	1.00	3.54	1.20
C-15	7. Interests and Careers	–.09	1.0	3.21	1.27	2.85	1.21
C-17	8. Clarify Work Values	–.14	2.7	2.87	1.30	2.23	1.42
C-18	9. Aptitude Tests	–.06	0.4	3.72	0.90	3.54	1.13
C-20	10. Reduce Race Stereotyping	–.14	2.5	4.26	1.02	3.77	1.17
C-30	11. CE Evaluation	–.14	2.5	4.25	0.85	3.85	1.07
C-31	12. Operate Resource Center	–.10	1.4	3.22	1.74	2.62	1.89
C-32	13. Follow-up School Leavers	–.06	0.4	4.51	0.87	4.33	0.98
	LINKAGE ACTIVITIES						
C-1	1. Develop CE Curriculum	–.03	0.1	3.52	1.26	3.38	1.19
C-6	2. Team With CE Staff	.06	0.5	3.79	1.06	4.00	1.22
C-7	3. Career Fair	–.06	0.3	4.58	0.67	4.46	0.88
C-24	4. Provide Materials to Teachers	.01	0.0	3.52	1.07	3.54	1.13
C-25	5. Conduct CE Inservice	–.12	2.0	4.65	0.59	4.38	1.04
C-26	6. Prepare Activities For Teachers	.11	1.6	4.37	0.78	4.08	0.51
C-27	7. Assist Teachers With CE	.00	0.0	4.42	0.93	4.42	0.79
C-33	8. Needs Assessment	.01	0.0	4.50	0.73	4.54	0.66
C-34	9. Work Experience	–.06	0.3	4.21	1.27	4.00	1.65
C-35	10. Interpret Evaluations for Teachers	.00	0.0	4.07	1.03	4.06	0.95
C-36	11. Team Teach with Teachers	–.02	0.1	3.83	1.01	3.75	1.06
	EXTRA SCHOOL ACTIVITIES:						
C-2	1. Educational Placement	–.08	0.8	3.23	1.84	2.77	1.54
C-3	2. Parents CE Presentation	–.13	2.4	4.32	0.83	3.92	1.26
C-4	3. Business Presentation	–.14	2.5	3.97	0.92	3.54	1.20
C-11	4. Field Trips	.00	0.0	4.29	0.92	4.31	0.63
C-14	5. Shadowing Experiences	.05	0.4	4.39	0.86	4.54	0.88
C-16	6. Occupational Placement	–.10	1.2	4.38	0.95	4.08	0.95
C-18	7. CE Materials for Home	–.05	0.3	3.65	1.24	3.46	1.20
C-21	8. Follow-up Graduates	–.04	0.2	4.57	0.70	4.46	1.13
C-22	9. Job Placement	.04	0.2	4.34	0.90	4.46	0.88
C-23	10. Part-time Job Placement	–.08	0.8	3.82	1.04	3.54	1.39
C-28	11. List Community Resources	.04	0.2	4.27	0.86	4.38	0.87
C-29	12. Communicate with Community	–.08	0.8	4.14	0.79	3.92	1.16
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.03	0.1	54.4	10.3	53.3	11.1
	2. Perceived Burden	.09	1.1	44.7	10.7	48.0	9.9
	3. Role of Schools	–.07	0.7	52.3	10.5	54.8	12.2

*P < .05
**P < .01

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	4/88	.13	5.11	.01	29.5%	151
Role/Behavior (u)	36/88	.26	1.12	NS	59.1%	173
Value Internalization (u)	3/88	.01	.53	NS	2.3%	1464
Common Contribution		.04			8.9%	
Total R^2	43/88	.44	1.61	.05	100%	130
Adjusted R^2		.12				

that the small nontarget sample precludes extensive generalization about the counseling process and career education.

The most striking characteristic of Table 5.41, exceeded only by the absence of significant contrasts, is the direction of the differences. Except for two variables under Knowledge and Understanding (perceived level of implementation and agreement with career education goals), only one difference is significant, and it favors nontarget counselors. Many other variables approach significance, and most of these favor nontarget counselors. One interpretation of these findings is that projects have done a poor job of inservicing counselors. Another interpretation is that the thirteen nontarget counselors are somehow atypical of the universe of nontarget counselors. An examination of the frequency with which target counselors engage in selected career education activities suggests that the former interpretation has credence. For example, activities such as obtaining career evaluation instruments, following-up school leavers, participating in career fairs, conducting career-related inservice, preparing activities for teachers, assisting teachers with career education, implementing a work exploration or work experience program, sponsoring field trips to business and industry, sponsoring shadowing experiences for students, actively assisting in occupational placement, following-up graduates, preparing a list of community resources for career education, and communicating with the community about schools' career education programs are all arranged by the target counselor, on the average, between less than once a month and never.

Project Variation

Table 5.42 presents project-by-project differences in target counselors' Knowledge and Understanding, Role/Behavior, and Value Internalization. There are only four isolated contrasts which are significant under Knowledge and Understanding. This indicates that there is as much variation within projects as between projects on these variables. In terms of Role/Behavior, five projects stand out as having better than average counselor reported implementation. These are: Jobland, Workville, Mt. Exploration, Prepton and Cognitive Camp. Only one project, Studytown, is markedly lower on overall counselor implementation. The project differences in counselor reported implementation bear little resemblance to project differences in teacher reported implementation. This finding, combined with the relatively low frequency with which target counselors engaged in most career education activities, suggests that the projects realized a rather limited process effect on counselors.

Determinants of Counselor Reported Implementation

This section examines the effects of the four sets of determinants of counselor reported implementation (counselor characteristics, counseling context, organizational capacity, and adoption strategy) on seven process variables. The regression/commonality analysis procedure is used to partition the explained variance into those portions which can be

TABLE 5.42

PROJECT BY PROJECT DIFFERENCES IN TARGET COUNSELORS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNA ZATION*

Item Location	Brief Variable Description	PROJECTS														
		Jobland (N=8)	Workville (N=12)	Trekville (N=6)	Awareville (N=4)	Voc. Beach (N=3)	Un. Domain (N=7)	Mt. Explor. (N=9)	Prepton (N=1)	Study Tn. (N=14)	Cog. Comp (N=4)	Ent. Springs (N=10)	Middletown (N=8)	Career City (N=2)	Opp. City (N=8)	Fellows (N=11)
	KNOWLEDGE AND UNDERSTANDING															
C-13	1. Improve Level of Implementation									.19						.22
C-14	2. Reported Understanding															
C-15	3. Reported Preparation															
C-16	4. Agreement with CE Goals							−.23								.21
	ROLE/BEHAVIOR: STUDENT COUNSELING:															
C-5	1. Advise Students on Careers			−.25								−.24				
C-8	2. Group Guidance			.18				.37								
C-9	3. Career Decisions															
C-10	4. Job Seeking/Getting			.19					.21				.24		−.19	
C-12	5. CE Tests															
C-13	6. Reduce Sex Stereotyping						−.19									
C-15	7. Interests and Careers		.21										.20			
C-17	8. Clarify Work Values															−.26
C-19	9. Aptitude Tests															
C-20	10. Reduce Race Stereotyping															
C-30	11. CE Evaluation										.26					
C-31	12. Operate Resource Center	.37	.37							−.36						
C-32	13. Follow-up School Leavers		.20													−.23
	LINKAGE ACTIVITIES:															
C-1	1. Develop CE Curriculum								.19	−.21	.19					
C-6	2. Team with CE Staff			.25					.25							
C-7	3. Career Fair	.23					.23			−.23	.23					
C-24.	4. Provide Materials to Teachers	.24			−.22											
C-25	5. Conduct CE Inservice										.29					
C-26	6. Prepare Activities for Teachers	.19														
C-27	7. Assist Teachers with CE															
C-33	8. Needs Assessment		.28							−.22					−.20	
C-34	9. Work Experience		.26						.24							
C-35	10. Interpret Evaluations for Teachers		.24						.26							
C-36	11. Team Teach with Teachers							.21		−.20						
	EXTRA SCHOOL ACTIVITIES:															
C-2	1. Educational Placement		.26	−.21	.21			−.23								
C-3	2. Parents CE Presentation							.27		−.24						
C-4	3. Business Presentation		.20								.19	−.24				
C-11	4. Field Trips	.28														
C-14	5. Shadowing Experiences	.21											.24		.28	
C-16	6. Occupational Placement	.25										−.20				−.19
C-18	7. CE Materials for Home			−.21						−.19						
C-21	8. Follow-up Graduates															
C-22	9. Job Placement		.19													
C-23	10. Part-time Job Placement		.32	−.21		−.18										.28
C-28	11. List Community Resources							.31		−.28						
C-29	12. Communicate with Community	.35					−.21								−.19	
	VALUE INTERNALIZATION:															
	1. Perceived Benefits							.22				−.21				
	2. Perceived Burden				−.21											
	3. Role of School							.20								

SUMMARY BY VARIABLE SET

Variable Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Knowledge and Understanding (u)	.01	.04	.04	.03	.03	.04	.06	.01	.03	.02	.02	.06	.05	.02	.06
Role/Behavior (u)	.48	.42	.40	.30	.36	.45	.41	.48	.48	.44	.22	.43	.34	.38	.31
Value Internalization (u)	.06	.02	.04	.05	.04	.01	.03	.05	.04	.01	.04	.02	.01	.02	.04
Common Contribution	.07	.02	.00	.02	.00	.00	.04	.06	.01	.00	.02	.00	.00	.04	.06
Total R^2	.62	.50	.48	.40	.43	.50	.54	.60	.56	.47	.30	.51	.40	.46	.47
Adjusted R^2	.37	.17	.15	.01	.05	.17	.24	.33	.26	.23	.00	.20	.01	.11	.12

*Only those differences significant (two-tailed F test) at the .05 level or better are included.
A blank column indicates no appropriate respondents were included.

uniquely assigned to each set and those portions which are held in common by the four sets. Table 5.43 presents the contributions to explaining implementation made by each set, as well as descriptions of the variables comprising each set of determinants. The implementation/process of career education is represented by seven variables. These are: (1) a composite of Knowledge and Understanding variables, (2) frequency of student counseling activities, (3) frequency of linkage activities, (4) frequency of extra school activities, (5) perceived benefits of career education, (6) perceived burden of career education, and (7) role of school. The activity variables also are composites; they are formed by summing reported implementation levels across activities. The three attitude variables were created by factor scoring the forty Likert items and standardizing the resulting scores ($\overline{X} = 50$, SD = 10).

The first interesting observation from Table 5.43 is that adoption strategy is largely unimportant in predicting most of the process measures. Neither number of hours inservice nor types of inservice explain any of the variation in counselor reported implementation. Staff characteristics and counseling context, on the other hand, are quite important. Among counselor characteristics, sex is the most important, with females reporting higher levels of implementation than males ($r = .25$). Among the set of counseling context variables, frequency of individual counseling with students stands out as the best predictor of knowledge and understanding. The

TABLE 5.43
RELATIONSHIPS BETWEEN DETERMINANTS OF IMPLEMENTATION AND SEVEN PROCESS VARIABLES[†]
COUNSELORS (N=119)

Determinants of Implementation	Variable Descriptions	Knowledge and Understanding	Role/Behavior			Value Internalization		
		Composite Knowledge	Counseling Activities	Linkage Activities	Extra School Activities	Perceived Benefits	Perceived Burden	Role of School
Staff Characteristics (u)	Age, Sex, Race Highest Degree Held Number Years of Counseling Experience Teaching Experience Parttime Summer Job Number Occupations Employed in	.14**	.08	.08**	.06	.11	.21**	.07
Counseling Context (u)	% Time Spent in Career Counseling Number Students Assigned % Time with Individual Students % Time with Groups of Students % Time on Record Keeping	.10*	.12**	.08**	.04	.13**	.04	.16**
Organizational Capacity (u)	Staff Morale School Effectiveness–Basic Skills School Effectiveness–Work Values School Effectiveness–Job Seeking School Effectiveness–Decision Making School Effectiveness–Continuing Education	.03	.04	.06	.04	.04	.07	.02
Adoption Strategy (u)	Number Hours CE Staff Development CE Concepts Staff Development CE Curriculum Staff Development CE Counseling Staff Development CE Using Community Staff Development	.03	.05	.01	.07	.04	.06	.08*
Common Contribution		.02	.14	.16	.09	.00	.09	.04
	Total R^2	.31**	.42***	.38**	.31**	.32**	.46***	.36**
	Adjusted R^2	.01	.16	.12	.00	.02	.22	.08

†Significance tested with two-tailed F test.

* < .05 ** < .01 *** < .001

best predictors of frequency of counseling activities and linkage activities are amount of time available for individual (r = .29 and .05), group (r = .21 and .30), and career counseling (r = .22 and r = .35). Time spent on recordkeeping has a negative correlation with implementation (r = -.16). These same three variables are correlated at comparable levels with perceived benefits and role of school.

Principal Reported Implementation of Career Education

During April and May 1977, target (N = 128) and nontarget (N = 24) principals completed the Principal Survey Form, which closely paralleled the forms administered to teachers and counselors. This section examines differences between target and nontarget principals in terms of Knowledge and Understanding, Role/Behavior, and Value Internalization. Project-by-project differences are also considered. Again, due to sample size limitations, all principals within target and nontarget classifications have been combined for analysis, regardless of the grade levels served by their schools.

Target-Nontarget Differences

Table 5.44 presents the differences between target and nontarget principals' Knowledge and Understanding, Role/Behavior, and Value Internalization. The Knowledge and Understanding differences are substantially larger than those observed for teachers and counselors. Target principals report almost unanimously that "career education is being actively implemented"

TABLE 5.44

DIFFERENCES BETWEEN TARGET AND NONTARGET PRINCIPALS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION

Item Location	Brief Variable Description	r	F	Target Group N=126		Nontarget Group N=21	
				$\bar{X}$	SD	$\bar{X}$	SD
	KNOWLEDGE & UNDERSTANDING						
P-19	1. Current level of Implementation	.67	112.7*	1.12	0.44	2.79	1.36
P-20	2. Reported Understanding	.24	8.8**	1.26	0.46	1.60	0.60
P-21	3. Reported Preparation	.47	40.9**	1.45	0.60	2.45	0.89
P-22	4. Agreement with CE Goals	.17	4.4*	1.56	0.56	1.84	0.37
	ROLE/BEHAVIOR						
	LINKAGE ACTIVITIES:						
P-1	1. Develop CE Curriculum	.20	6.0*	4.10	0.93	4.62	0.74
P-2	2. Team with School Staff	.08	1.0	4.25	0.73	4.43	0.87
P-3	3. Team With CE Staff	.12	2.0	4.36	0.78	4.62	0.74
P-4	4. Career Fair	.22	7.1**	4.58	0.62	4.95	0.22
P-11	5. Conduct CE Meetings	.30	14.4**	3.93	0.66	4.52	0.68
P-13	6. Schedule Inservice	.35	19.5**	3.70	0.82	4.52	0.60
P-14	7. Develop List of Resources	.10	1.4	4.28	0.85	4.52	0.98
P-16	8. Conduct CE Inservice	.22	7.0**	4.56	0.68	4.95	0.22
P-17	9. Assist Teachers With CE	.20	6.1*	4.21	0.90	4.71	0.56
P-18	10. Interpret CE Evaluation	.23	7.7**	4.13	0.86	4.67	0.58
P-19	11. Request CE Funds	.22	7.0**	4.26	0.83	4.76	0.70
	EXTRA SCHOOL ACTIVITIES:						
P-5	1. Liaison with Business	.11	1.8	3.97	1.18	4.33	0.97
P-6	2. Occupational Placement	.10	1.5	4.76	0.70	4.95	0.22
P-7	3. Follow-up Students	.09	1.1	4.76	0.59	4.90	0.30
P-8	4. Find Part-time Jobs	.09	1.3	4.56	0.96	4.81	0.68
P-9	5. Place in Part-time Jobs	.11	1.7	4.57	0.83	4.81	0.51
P-10	6. Communicate CE Importance	.19	5.2*	4.01	0.86	4.48	0.93
P-12	7. CE Advisory Group	.23	8.0**	4.54	0.58	4.90	0.30
P-15	8. Communicate CE Program	.25	9.3**	3.98	0.87	4.62	0.92
	VALUE INTERNALIZATION:						
	1. Perceived Benefits	.14	2.8	52.8	8.44	49.4	9.60
	2. Perceived Burden	.07	0.7	47.9	10.08	49.9	6.57
	3. Role of Schools	.14	2.9	51.7	9.00	48.2	7.83

*$p < .05$

**$p < .01$

SUMMARY

Process Domain	SUMMARY BY PROCESS DOMAIN					
	dF	R^2	F Ratio	Significance Level	% of Explained Variance	Power Sample
Knowledge and Understanding (u)	4/120	.30	19.15	.01	57%	67
Role/Behavior (u)	19/120	.05	.67	N.S.	9%	505
Value Internalization (u)	3/120	.01	.85	N.S.	2%	1447
Common Contribution		.17			32%	
Total R^2	26/120	.53	5.20	.01	100%	78
Adjusted R^2		.40				

in their schools. They also frequently report a "full understanding of the concept of career education" and that they are "adequately prepared" for the implementation of career education. An overwhelming majority of the principals "strongly agree with the goals of career education." On the other hand, nontarget principals report statistically significantly lower levels of implementation, understanding, preparation, and agreement with career education goals.

Eleven of eighteen contrasts under Role/Behavior are statistically significant, and all favor target principals. Among the activities which target principals report implementing more frequently are: developing career education materials, planning and coordinating career fairs, conducting staff meetings to plan for career education activities, scheduling career education inservice, conducting career education inservice, assisting teachers with career education, interpreting career education evaluation data, requesting career education funds, speaking to community groups and parents about career education, participating on career education advisory groups, and promoting the schools' career education program. Under Value Internalization, no statistically significant differences were found between target and nontarget principals. Overall, there are substantial differences between target and nontarget principals' Knowledge and Understanding and Role/Behavior.

Project Variation

Table 5.45 presents project-by-project differences in target principals' Knowledge and Understanding, Role/Behavior, and Value Internalization. With only two exceptions, most differences appear sporadic. Mt. Exploration stands out as above average on ten of eighteen activities, and Unique Domain's principals report an exceptionally high level of Knowledge and Understanding. Beyond these two projects, there appears to be little distinction in principals' Role/Behavior across projects. As we noted earlier, target principals appear to engage in career education activities more frequently than their nontarget peers, but there was little project variation in the ways these target principals fulfilled their career education-related roles.

Determinants of Principal Reported Implementation

Analyses in this section parallel those for teachers and counselors. The purpose of these analyses is to identify the most important determinants of principals' reported level of implementation. Principals' reported implementation is measured by six variables (composite knowledge, linkage activities, extra school activities, perceived benefits of career education, perceived burden of career education, and role of the school). Four sets of determinants, similar [illegible] those used for teachers and counselors, are used to explain principal reported implementation.

Table 5.46 presents the relationships between principals' reported implementation and four sets of determinants.

TABLE 5.45
PROJECT BY PROJECT DIFFERENCES IN TARGET PRINCIPALS' KNOWLEDGE AND UNDERSTANDING, ROLE/BEHAVIOR AND VALUE INTERNALIZATION*

Item Location	Brief Variable Description	PROJECTS														
		Jobland (N=15)	Workville (N=11)	Trekaville (N=11)	Awaresville (N=3)	Voc. Roech (N=3)	Un. Domain (N=12)	Mt. Explor. (N=8)	Prepton (N=1)	Study Tn. (N=15)	Cog. Camp (N=5)	Bet. Springs (N=4)	Middlesex (N=6)	Career City (N=14)	Opp. City (N=8)	Fallstaff (N=10)
	KNOWLEDGE AND UNDERSTANDING:															
P-19	1. Current Level of Implementation						.41									
P-20	2. Reported Understanding						.36									
P-21	3. Reported Preparation						.48	.18								
P-22	4. Agreement with CE Goals						.25			.20						
	ROLE/BEHAVIOR															
	LINKAGE ACTIVITIES:															
P-1	1. Develop CE Curriculum															
P-2	2. Team with School Staff							.23					.18			
P-3	3. Team with CE Staff							.20		−.21			.20			
P-4	4. Career Fair												.21			
P-11	5. Conduct CE Meetings							.22				−.23				
P-13	6. Schedule Inservice					.20		.23								
P-14	7. Develop List of Resources															
P-16	8. Conduct CE Inservice							.26								
P-17	9. Assist Teachers with CE										.23		−.20			
P-18	10. Interpret CE Evaluation										.22				−.19	
P-19	11. Request CE Funds	.27												.33	−.20	
	EXTRA SCHOOL ACTIVITIES:															
P-5	1. Liaison with Business					.26		.38								
P-6	2. Occupational Placement							.19								
P-7	3. Follow-up Students															
P-8	4. Place in Part-time Jobs															.20
P-9	5. Find Part-time Jobs															.19
P-10	6. Communicate CE Importance							.35				−.21			−.19	
P-12	7. CE Advisory Group							.19								
P-15	8. Communicate CE Program							.33								
	VALUE INTERNALIZATION:															
	1. Perceived Benefits															.25
	2. Perceived Burden								−.37		.20			.20		
	3. Role of School															.14

SUMMARY BY VARIABLE SET

Variable Set	PROJECT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Knowledge and Understanding (u)	.03	.01	.04	.01	.01	.24	.01	.00	.06	.03	.02	.04	.01	.01	.05
Role/Behavior (u)	.20	.08	.22	.11	.19	.12	.24	.14	.15	.26	.12	.20	.33	.13	.15
Value Internalization (u)	.04	.02	.04	.02	.01	.00	.01	.22	.03	.03	.03	.01	.02	.02	.10
Common Contribution	.01	.01	.00	.00	.05	.12	.07	.01	.01	.04	.18	.04	.06	.00	.01
Total R^2	.28	.12	.30	.14	.26	.42	.33	.37	.25	.36	.19	.29	.42	.17	.31
Adjusted R^2	.06	.00	.09	.00	.08	.25	.13	.18	.03	.17	.00	.08	.25	.00	.10

*Only those differences significant (two-tailed F test) at the .05 level or better are included.
A blank column indicates no appropriate respondents were included.

TABLE 5.46
RELATIONSHIPS BETWEEN DETERMINANTS OF IMPLEMENTATION AND SIX PROCESS VARIABLES†
PRINCIPALS (N=123)

Determinants of Implementation	Variable Descriptions	Knowledge and Understanding	Role/Behavior		Value Internalization		
		Composite Knowledge	Linkage Activities	Extra School Activities	Perceived Benefits	Perceived Burden	Role of School
Staff Characteristics (u)	Age, Sex, Race Number Years Principal Experience Number Occupations Employed in Parttime Summer Job	.05	.05	.03	.05	.02	.05
School Context (u)	Average Daily Attendance Frequency of Business Participation Frequency of Labor Participation Number of Librarians in School % of Free Lunch Students	.04	.06	.13*	.08	.00	.05
Organizational Capacity (u)	Staff Morale School Effectiveness–Basic Skills School Effectiveness–Work Values School Effectiveness–Job Seeking School Effectiveness–Decision Making School Effectiveness–Continuing Education	.06	.02	.01	.02	.04	.02
Adoption Strategy (u)	Number Hours CE Staff Development CE Concepts Staff Development CE Curriculum Staff Development CE Counseling Staff Development CE Using Community Staff Development	.20**	.17**	.12*	.12	.14	.05
Common Contribution		.19	.13	.13	.07	.02	.02
	Total R^2	.53**	.41*	.42*	.33	.22	.19
	Adjusted R^2	.35	.18	.21	.08	.00	.00

†Significance tested with two-tailed F test.

* < .05 ** < .01 *** < .001

Between forty and fifty percent of the variance in composite knowledge, linkage activities, and extra school activities is explained collectively by staff characteristics, school context, organizational capacity, and adoption strategy. Several of the most important specific determinants of composite knowledge are frequency of building level inservice meetings (r = .42), percent of staff that have been inserviced (r = .40), number of hours of inservice the principal has received (r = .27), inservice on career education concepts (r = .41), inservice on career education curriculum (r = .32), and inservice on career education and the community (r = .22). The most important determinants of linkage activities are inservice on career education concepts (r = .38), percent of staff inserviced (r = .23), and frequency of career education meetings within the school (r = .50). Two variables stand out as important determinants of extra school activities. These are inservice on career education concepts (r = .40) and inservice on activities involving parents (r = .38).

In general, background characteristics of the principal, school context, and organizational capacity are inconsequential in determining target principals' implementation of career education. A complex of adoption strategy variables acted as the primary determinant of principal reported implementation. The major departure of these findings from those reported for teachers is the fact that staff morale, as perceived by the principal, is not related to principal reported implementation. In contrast, teacher perception of staff morale was very much related to level of teacher reported implementation; the higher the perceived morale, the higher the reported implementation.

Conclusion

In this chapter we have traced the implementation/process of career education as viewed by students, teachers, counselors, principals, local project staff, and NTS' professional staff. In this section we will recap the major findings gained from the analyses presented in this chapter.

- The implementation/process of career education is an extraordinarily complex undertaking involving the resocialization of large numbers of teachers, counselors, and principals. We found several factors which operated to facilitate the implementation/process within a school system. Among the most prominent facilitating factors were the following: (1) bureaucratic initiatives emanating from OCE including national and regional workshops, written materials, and personalized correspondence all contributed to a "sense of community" among the projects; (2) organizational experience with change and demonstrated success in implementing innovations enabled some projects to gear up quickly; (3) superintendent support and commitment to career education was important in not only facilitating implementation, but in predicting postproject status of career education within the district; (4) staff morale was unusually high and the contagious energy which resulted made possible a higher quality of implementation; (5) career education's consonance with prevailing attitudes and social movements was undoubtedly a factor in the concept's appeal to a wide range of school districts and factions within districts; (6) absence of friction between OCE and the projects clearly facilitated implementation; and (7) the number of hours of inservice per person, although somewhat limited, was an important factor in promoting implementation. The general climate was conducive to quality implementation in most projects, although as we shall see below, a number of factors conspired to impede full implementation.

- Just as some factors facilitated the implementation/process of career education, there were some factors which were clear impediments to quality implementation. Some of these impediments were as follows: (1) projects have structural properties which make them a poor vehicle for implementing or institutionalizing career education. The more mature projects, for whom institutionalization was a goal, experienced some difficulties operating under a project mechanism; (2) the grants process and funding cycle, with all their uncertainties, impeded implementation in several sites; (3) inservice workshops were the primary adoption strategy; however, a commitment to wide-scale implementation led many projects to spread themselves too thin, thus reducing instrumental assistance and impeding full implementation; (4) most projects employed a top-down adoption philosophy which inhibited practitioner participation in the formative stages of project design and implementation; (5) project proposals and subsequent planning documents were insufficiently explicit about the process of career education and process-outcome relationships, resulting in "specification failure" in a number of sites; (6) projects with limited prior experience with career education and projects with inexperienced project directors had insufficient time to plan and gear up; (7) several projects attempted complete saturation of their respective districts resulting in large numbers of practitioners receiving relatively small amounts of inservice; and (8) several project directors lacked prior project management experience or administrative experience (although they did not lack enthusiasm), resulting in delayed or imprecise implementation during their project's critical first few months.

- When career education is implemented, something presumably gets changed. The sum total of these changes serves to define the process of career education. Five dimensions or types of change can be usefully employed to characterize the process of career education. These are: tangible resources, intangible resources, practitioner knowledge and understanding, practitioner role/behavior, and value internalization. The most difficult of these dimensions to implement is role/behavior, and it is precisely this dimension upon which career education focuses a majority of attention. Successful implementation of career education does not require new facilities, large complements of additional staff, or complex new organizational arrangements, but it does require changing or resocializing educators, a task which has long been recognized as a formidable undertaking.

- At the fifth and eleventh grades, we observed a clear pattern of process effect favoring higher exposure for target students. We expected more target-nontarget differences in exposure to classroom based activities among fifth graders and more such differences in exposure to extra school activities among eleventh graders, and our expectations were confirmed. The observed process effects were not overwhelming, but they were sufficiently frequent and consistent in direction to conclude that fifth and eleventh grade target students had educational experiences which were different from those of nontarget students. Grade variation consistently favored white fifth grade target students over white eighth grade target students in exposure to career education activities however, black eighth grade target students reported higher exposure than black fifth grade target students. The differences between eighth and eleventh grade target students were mixed. Project-by-project differences in student exposure evidenced a stable pattern. Projects promoting high student exposure did so consistently on a broad range of activities. Similarly, the most successful projects tended to evidence success in promoting student exposure at all grade levels, whereas projects having less success experienced difficulty at all grade levels.

- Target teachers reported more frequent implementation of career education activities than nontarget teachers. Differences among target teachers showed a similar pattern to that observed for target students' reported exposure. Fifth and eleventh grade target teachers reported higher levels of Knowledge and Understanding of career education, Role/Behavior change, and positive Value Internalization than eighth grade teachers. The finding that project level variation in student reported exposure closely parallels project variation in teacher reported implementation is strong confirming evidence that not only were several projects successful in resocializing teachers, but that changes in teachers' Knowledge and Understanding, Role/Behavior, and Value Internalization appear to have translated into changes in what students experience.

- The most striking characteristic about counselor reported implementation was that target counselors (N = 126) do not report higher levels of career education activity than nontarget counselors (N = 13) and, furthermore, the overall activity pattern, although not significant (p<.05), favors nontarget counselors. A close examination of the frequency with which target counselors engage in career education activities confirms that there is considerably less activity than expected. We conclude that the counseling role was the weakest link in the career education delivery process across the fifteen projects. One possible explanation for these findings is that project staff usurped some of the responsibilities traditionally assumed by counselors and left the counselor to fill an undefined role in the career education process.

- Differences between target (N = 128) and nontarget (N = 24) principals were numerous, of substantial magnitude, and consistently favored target principals. In particular, target principals reported more Knowledge and Understanding of career education concepts and higher agreement with career education goals. Target principals were much more active than their nontarget peers in linkage activities, such as scheduling and conducting inservice activities, developing career fairs, preparing career education curricula, as well as promotional activities with parents and community groups.

- Aggregating reported levels of implementation for teachers, counselors, and principals, several generalizations about the implementation/process of career education are possible. Target teachers, counselors, and principals reported a high level of Knowledge and Understanding of career education. With near unanimity, target educators reported that the "concept of career education is being actively implemented" in their schools. Similarly, all three groups "strongly agree with the goals of career education." Target teachers and principals feel they have a "full understanding of the concept of career education" and are "adequately prepared for the implementation of career education. In terms of Role/Behavior, teachers and principals reported substantially more frequent implementation of career education activities than nontarget teachers and principals. Target teachers engaged in classroom activities and extra school activities most frequently, whereas principals were more frequently involved in linkage activities. Differences in Value Internalization between target and nontarget educators were infrequent. Fifth and eleventh grade target teachers showed some tendency to perceive more benefits in career education and less implementation burden, but these differences were not found between target and nontarget principals and counselors. Overall, we found educator knowledge and understanding of career education consistently affected by the projects. Role/Behavior changes were seen frequently, particularly among principals and fifth and eighth grade teachers. Among practitioner groups, fewer changes in Value Internalization were apparent.

- Most student background characteristics have low correlations with student reported exposure to career education. There is a consistent tendency for black students to report more exposure to career education activities than white students, and this pattern holds at all three grade levels for both target and nontarget students. It is likely, however, that this ethnicity effect is partially due to a correlation between project membership and race; the most successfully implemented projects have slightly disproportionate numbers of black students.

- Adoption strategy appears consistently to be related to teacher reported implementation, particularly at grades five and eleven. Both the number of inservice hours and types of inservice activity were found to positively correlate with composite knowledge, classroom activities, linkage activities, extra school activities, and value internalization at one or more grade levels. Adoption strategy was also an important determinant of principals' composite knowledge, linkage activities, and extra school activities. Among counselors, however, amount and type of inservice were largely inconsequential.

In summary, career education as implemented in the fifteen projects studied in this evaluation was associated with differences in educators' knowledge, reported professional behavior, and, to a lesser extent, attitudes. There is also evidence that the ways projects implement career education and the setting in which implementation takes place were related strongly to quality of implementation. Last, there is support for the conclusion that changes in practitioners' behavior were translated effectively into new instructional experiences for students. We turn now to a consideration of whether observed changes in instructional processes are related to learner outcomes.

6

THE OUTCOMES OF CAREER EDUCATION

The Models

Although this chapter deals with the effects of career education on various outcome measures, it does not represent in any way an attempt to evaluate career education. Rather, the purpose of this research has been to assess the usefulness of three different research models as a means of evaluating career education programs. The need to have multiple evaluation models available to access a data set has been succinctly summarized by Gilbert, Mosteller, and Tukey (1976):

> Any attempt to infer what will be caused by an active intervention from data involving either no intervention ("natural experiments") or unrandomized intervention has to be subject to possibilities of error that are hard to evaluate. Any attempt to assert that the statistical significance or confidence associated with such an analysis allows us to conclude reliably what active intervention will do is dangerous and unsound.
>
> The best we know how to do in such a situation is to seek out alternative methods of fallible inference, use up to several of them, and then, recognizing their fallibility, trust moderately in their combined message.(p.155-6)

To this end, we have organized the results reported in this chapter in the following manner. After an introduction that summarizes the models, outcome measures, and some related methodological issues, the results of applying each of the models to the entire student data set at each grade level are reported. The usefulness of such results is questionable, however, on two grounds: analysis of the entire data set may cause any effects that the models would measure to be confounded by inter-project differences, and/or the effects that the models would measure will be manifested only at the group level. Consequently, the results of applying the models to student data within projects are then reported, followed by the results of applying the models on the entire data set but with the classroom or building, rather than the student, as the unit of analysis. The last section of this chapter focuses on one of the three paradigms called the process model which explores the nature of the relationships between career education activities and the outcome measures. In particular the variance or invariance of these relationships as a function of the subgroup to which the model is applied is examined.

In order to meet the objective of identifying and testing a career education evaluation model, NTS developed three complementary models which could be used to explore the impact of career education processes on constructs measuring various student learner outcomes. While the models have been fully described in Chapter 2, it would be worthwhile to describe them again in terms of the general linear model/multiple regression analysis approach that was used to implement them. It should be kept in mind that our main interest lies not so much with the statistical significance of an effect, but rather what proportion of the outcome variance is being accounted for by an effect.

Group Membership Model

The first approach was the classical experimental design where a nontarget group was used to estimate what the target students would have achieved had there been no career education program. The group membership effect, which we will also refer to as "treatment" effect, is estimated by the difference between the target and nontarget posttest construct means adjusted for pretest differences. The treatment effect can be reexpressed, however, as the proportion of outcome construct variance that can be explained by group membership (target vs. nontarget) after the differences in pretest performance have been removed. The higher the proportion, the more we can be assured that membership in a target or nontarget group has had a bearing on performance level as measured by the posttest constructs.

For the group membership model, the following multiple regression coefficients are computed:

R_1: postconstruct predicted by preconstruct

R_2: postconstruct predicted by preconstruct and group membership

R_3: postconstruct predicted by preconstruct, group membership, and the product of preconstruct and group membership

Then R_2^2 R_1^2 represents the proportion of variance in the outcome construct scores accounted for by group membership over and above what was accounted for by the pretest construct scores obtained at the start of the program. Similarly, R_3^2 R_2^2 represents the proportion of additional variance accounted for by the interaction of group membership and preconstruct. The ratio $(R_2^2 - R_1^2)/(1-R_1^2)$ and represents the protion of criterion variance accounted for by group membership. We have made the following distinction between outcome variance and criterion variance: outcome variance refers to the variance that is present in the observed posttest scores; criterion variance refers to the residual variance that remains in the posttest scores after the variance that can be attributed to pretest variation has been removed. Criterion variance can also be thought of as the variance in the difference score (called the criterion) constructed by subtracting the posttest score predicted by the pretest from the observed posttest score. Thus, the proportion of criterion variance accounted for by group membership reflects how much group membership can account for out of what is left over (i.e., after the pretest has been removed). Finally, the group membership F-statistic is computed by calculating the ratio $(R_2^2 - R_1^2)/(1-R_3^2)$ and multiplying by the appropriate degrees of freedom. Note that while the numerator of this ratio is the same for the proportion of criterion variance, the denominator represents the variance unaccounted for by the entire model (i.e., pretest, group membership, interaction), and not just the pretest.

Process Model

The second approach assesses the relationship between students' exposure to career education concepts and activities and their subsequent performance on the outcome constructs. If the career education program is having an effect, then we would expect that students with high exposure to career education activities would obtain higher posttest scores (adjusted for pretest differences) than students with low exposure to career education. To the extent that exposure scores are able to account for outcome variance beyond that explained by pretest, we infer a process effect.

For the process model, the following multiple regression coefficients are computed:

R_1: post-construct predicted by pre-construct

R_2: post-construct predicted by pre-construct and process variables

R_3: post-construct predicted by pre-construct, process variables, and the products of pre-construct and each of the process variables

Then $R_2^2 - R_1^2$ is the proportion of construct variance attributable to process effect, while $R_3^2 - R_2^2$ represents the proportion of construct variance attributable to the interaction of process and pretest. The ratio $(R_2^2 - R_1^2)/(1-R_1^2)$ is the proportion of criterion variance attributable to process effect. The F-statistic is based on the ratio $(R_2^2 - R_1^2)/(1-R_3^2)$ which is then adjusted by the appropriate degrees of freedom.

Joint Effects Model

The third approach consolidated the group membership model and the process model into one analysis. In the joint effects model, we deal only with criterion variance and examine what proportions of this variance can be attributed to the group membership and process components. Specifically, we examine what proportion can be uniquely attributed to group membership and not to process, what proportion can be uniquely attributed to process and not to group membership, and what proportion can be uniquely attributed to both group membership and process. To the extent that the unique contribution of group membership to explaining criterion variation is large, we infer that there was some treatment effect on the criterion, but our exposure variables failed to specify the relevant aspects of the process. If, on the other hand, the unique contribution of exposure variables to explaining criterion variation is large, we infer that the program did little to affect relevant process dimensions, which might be addressed by future career education programs interested in maximizing the particular outcome under consideration.

For the joint effects model, the following multiple regression coefficients are computed:

R_1: post-construct predicted by pre-construct

R_2: post-construct predicted by pre-construct and group membership

R_3: post-construct predicted by pre-construct and process variables

R_4: post-construct predicted by pre-construct, group membership, and process variables

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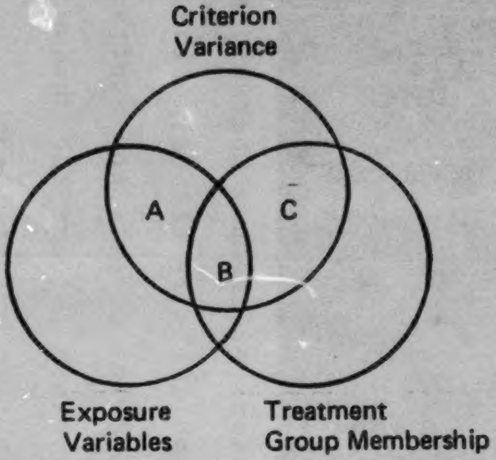
Then $R_4^2 - R_3^2$ is the proportion of variance in the outcome construct that is uniquely attributable to group membership. Similarly, $R_4^2 - R_2^2$ is the proportion uniquely attributable to process, and $R_4^2 - R_1^2$ is the proportion attributable to the combined effects of group membership and process. All three of these construct proportions can then be converted to criterion proportions by dividing by $(1-R_1^2)$. If we let A represent the unique group membership effect as expressed by the criterion proportion, let C represent the unique process effect as expressed by the criterion proportion, and let B represent the joing effect proportion common to both group membership and process, then A+B+C must represent the proportion of criterion variance attributable to the combined effect (or union) of group membership and process. This is displayed graphically by the balantine in Figure 6.1. To calculate the joint effect, one subtracts the unique effect of group membership (A) and the unique effect of process (C) from their combined effect (A+B+C).

Construct Definition

Another of the major tasks of this study was a validation study of the learner outcome instrumentation. This substudy, which is discussed at length in Volume III, consisted of psychometric analyses of pretest learner outcome data, leading to the identification of outcome constructs. The procedures used for these analyses relied heavily on factor analysis. The items comprising constructs were scored using item weights rather than factor weights to facilitate local

Figure 6.1

BALANTINE EXPRESSING THE RELATIONSHIPS FOR THE JOINT EFFECTS MODEL


Criterion Variance
A
C
B
Exposure Variables
Treatment Group Membership

usage. That process, intrinsic definition, was followed by applying extrinsic definition procedures to give labels to the constructs.

In addition to identifying nine learner outcome constructs within the career educationspecific instruments, we also developed two second-order factor scales from the SOS, and generated comparable reading and math scores from the wide variety of achievement test data made available to this study. Research by Stenner, et al. (1978) has indicated, however, that the comparibility of standardized tests, even though the tests may profess to be measuring the same areas of achievement, is questionable. Consequently, use of the achievement test data was limited to the project level of analysis.

A measure of "Desire to Work" was developed by staff at OCE and NIE. The items comprising this construct were selected on the basis of their face validity and included items 2, 3, 10, 11, 12, 15, 16, 18, 23 from the New Mexico One for all three grade levels and item 7 from the Ohio Grade 6 test, Part two, item 7 from the Ohio Grade 8 test, Part two, and item 6 from the Ohio Grade 10 test, Part two. Thus, for all three grades, "Desire to Work" was a ten item construct. The OCE and NIE staff assigned positive or negative valences to the responses which agreed with the publishers' scoring recommendations. While many of these items were included in our "Work Values" construct, nonetheless the OCE and NIE staff felt that a measure of "Desire to

Work" should be dealt with separately. All of the constructs used in this research are summarized in Figure 6.2. The two discriminant scores listed in this figure are described shortly in the section discussing the methodological issue of construct adequacy.

Methodological Issues

Difficulties emerged in both the development of the evaluation model and the construct definition procedures. These methodological issues were anticipated by neither OCE nor NTS at the initiation of the contract and were discovered during the course of this research. Specifically, the following issues were identified: construct adequacy, comparability of the control group, appropriateness of the aggregation level, and appropriateness of the unit of analysis.

Construct Adequacy

In this research nine career education-specific learner outcome constructs, were derived from the pretest data collected on several instruments. These instruments have been designed by their publishers to possess content validity in measuring one or more aspects of career education. Our concern has been that content validity exists only in the eye of the beholder, and the underlying constructs that each instrument is measuring should be determined through empirical observation. Consequently, factor analytic techniques have been used to explore the structure of the data, and nine constructs and their component items have been identified. These constructs should offer a much clearer reflection of

Figure 6.2
Learner Outcome Measures* and Item Sources

Outcome	Source(s)
Occupational Self-Awareness	Ohio, Part 2
Work Values	New Mexico 5001; New Mexico 5006
Interest in Career Preparation	New Mexico 5006
Attitudes Toward Work	New Mexico 5001
Knowledge of Work Values	PECE; Ohio, Part 1
Decision Making	New Mexico 5002; New Mexico 5006; New Mexico 5007; New Mexico 5008
Job Seeking/Job Getting	Ohio, Part 1; PECE; New Mexico 5002; New Mexico 5006; New Mexico 5007
Career Awareness	Ohio, Part 1
Economic Awareness	PECE
Affective Growth Discriminant	Ohio, Part 2; PECE; New Mexico 5001; New Mexico 5006
Cognitive Growth Discriminant	Ohio, Part 1; PECE; New Mexico 5001; New Mexico 5002; New Mexico 5006; New Mexico 5007; New Mexico 5008
Academic Perceptions	SOS-Teacher Affiliation and School Affiliation Scales
Social/Personal Perceptions	SOS-Peer Affiliation, Self-Acceptance, Self-Assertaion, Self-Security, and Social Confidence Scales
Reading Achievement	Appropriate reading achievement test used in each project
Math Achievement	Appropriate math achievement test used in each project.
Desire to Work	New Mexico 5001; Ohio, Part 2.

*With the exception of Interest in Career Preparation and Decision Making, these outcome measures were present at all three grades.

the underlying structure; items which possessed face validity but, in fact, only contributed "noise" to the observations have bee weeded out. Consequently, the constructs should be more sensitive than the intact instruments to the effects of career education. Such sensitivity is needed as one finds typically that, when pretest levels have been taken into account, less than half of the observed posttest variation is left for attribution to any treatment effect.

Despite all this, however, the constructs are still dependent upon the items that were borrowed from extant instruments. If these items are largely insensitive to the effects of career education in the fifteen projects evaluated here, then no amount of statistical manipulation will produce a construct that is. No provision was made in this research for item development; contractual limitations required the use of an existing item bank. Thus, while the individual items may possess face validity, and while sufficient interitem congruence may exist to permit the derivation of nine constructs, there is no guarantee that these items are sensitive to the changes that career education may produce.

While a direct measure of such sensitivity cannot be obtained, we can take an inferential step backwards and assess the constructs for this capability by examining each construct's sensitivity to growth, based on the pretest and posttest scores for each construct. Should there be little, if any, growth with respect to the constructs, we will be left with two possibilities: (1) either performance as measured by these constructs can be expected to deteriorate in the absence of intervention, a hypothesis that seems counterintuitive, or (2) the items upon which the constructs are based do not reflect growth. If we accept the second explanation, then it would seem likely that, if the constructs are insensitive to whatever developmental processes occur in the prepost interval, they will certainly also be insensitive to the effects of career education.

Consequently, two additional outcome construct scores were developed that would show as much growth as possible between pretest and posttest (we use "discriminant" in this context to indicate that these two scores should maximize the difference between pre- and posttest levels of performance): the cognitive growth discriminant and the affective growth discriminant. These scores are computed from those items at each grade level that exceeded a minimal level of positive pre/post growth (as measured in standard deviation units). They are listed in Table 6.1, along with the minimum growth criterion. The criterion was chosen to include only the 10 or 15 items showing the most growth. Thus, a criterion of one fifth of a standard deviation selected 20 items to comprise the grade 5 cognitive growth discriminant score. The reader should note that the criterion had to be relaxed for the affective items and also for succeeding grade levels. This latter phenomenon is consistent with Stenner's (1978) work on the standardized growth expectation (SGE) which has

Table 6.1

Cognitive and Affective Growth Discriminants' Item Sources

Grade	Source*	Cognitive Items	Growth Criterion**	Affective Items	Growth Criterion**
Five	Ohio	7,8,12,17,20,23,24	(.20)	10,13,18	(.15)
	PECE	3,11,16,19,22,25,28, 47,49,51,54,59,62		52,55,56,61,62,65	
	NM5001			3,15,20	
Eight	Ohio	2,14,15,16,17,18,19, 20,22,25,26,27,28	(.15)	7,8,26,31	(.10)
	PECE	1,4,7,9,11,16,17,19, 25,41,49,52,54,75			
	NM5001			14,16,20	
	NM5006	2,5		12,16	
Eleven	Ohio	1,5,6,14,17,20,21,29	(.10)	3,7,23	(.10)
	PECE	3,6,17,19,41,42,58,75			
	NM5006			13,15,16,17,18,19,20	
	NM5002, 5007, 5008	35			

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* Ohio: Ohio Career Development Test Series
PECE: Program of Exploration in Career Education Knowledge Test
NM5001-NM5008: New Mexico Statewide Evaluation Program Test Series

** Measured in standard deviation units.

indicated that the amount of growth measured in standard deviation units tends to drop as age increases. It may also indicate that the learner outcome items are also reflecting growth in reading ability, to some extent, at the lower grade levels. The use of traditional discriminant scores which maximize treatment effect was also considered. Pilot work with such scores indicated that they showed little, if any, growth and were no more sensitive to the effect of membership in a career education project than many of the constructs. They were therefore abandoned.

In addition to the discriminant scores, intact learner outcome total test scores (Ohio, PECE, etc.) were also used in the analyses. These instruments were developed with heavy emphasis on content validity. If the constructs failed to indicate any effects, the discriminant and total test scores would be available to perhaps capture those effects and at least provide some sort of baseline against which the adequacy of the constructs could be judged.

Comparability of the Control Group

In order to assess the effects of participation in a federallyfunded career education project, an approximation to the classical experimental design of a treatment and a control group was employed. The two groups are considered to be virtually identical in a control group design, as if true random assignment had been used; further, it is assumed that what differences may exist have no bearing on the process being measured or the measurements themselves. Any group differences that exist on the posttest, therefore, can be ascribed to the effects of the program.

Finding comparable control groups can be very difficult, however. Legal and ethical obligations frequently require that any individuals comparable to the project participants also should be included in the project. Such situations require sophisticated experimental designs such as those suggested by Campbell and Stanley. Should these obligations not exist, as in fact was the case with this study, the additional difficulty of selfselection remains.

The self-selection problem surfaces in two ways. First, the treatment group may be self-selected because of the desires of certain schools to participate or not to participate. Whatever motivates this desire may well be significantly related to the outcomes. Second, and perhaps the most crucial, is finding a comparable control group that also is willing to be measured by our instruments. In general, testing is an inconvenience. It requires both time and effort on the part of teachers and administrators. Such an inconvenience is generally palatable if it is accompanied by an influx of financial support such as a federally-funded career education project. The control group, by definition, should receive no such support. A control group, therefore, that is willing to be tested may well be motivated by some factor that is also significantly related to the outcomes.

We have already assessed, to some extent, the comparability of the groups with respect to their demographic characteristics.

and, to be sure, these differences were substantial, especially on ethnicity. Consequently, analyses were done to assess the effects of ethnicity on outcomes and processes. For example, if pretest means differ by as much as a third of a standard deviation, it is likely that statistical adjustment would be pointless. Under such circumstances, the group membership model would need to be abandoned.

Appropriateness of the Aggregation Level

As originally conceived, the unit of analysis in this research was the student, and the level of aggregation was all students across all projects. Two situations, however, make it advisable that other aggregation levels be considered.

First is the problem regarding control groups outlined in the previous section. For whatever the reason, many of the projects were unable to provide any control group data. Thus, if the overall aggregation level is used, we are comparing two groups which differ at least in their geographical makeup, not to mention any other characteristics that may be unique to particular projects. This would suggest that if we are to apply the group membership model appropriately, it should at least be at the level of the individual project. Of course, the pretest means within each project would still need to be examined.

Second, and much more critical, is the problem of trying to examine a relationship, be it between outcome and group membership or outcome and process, that may be inextricably tied to the attributes of certain subgroups in the sample.

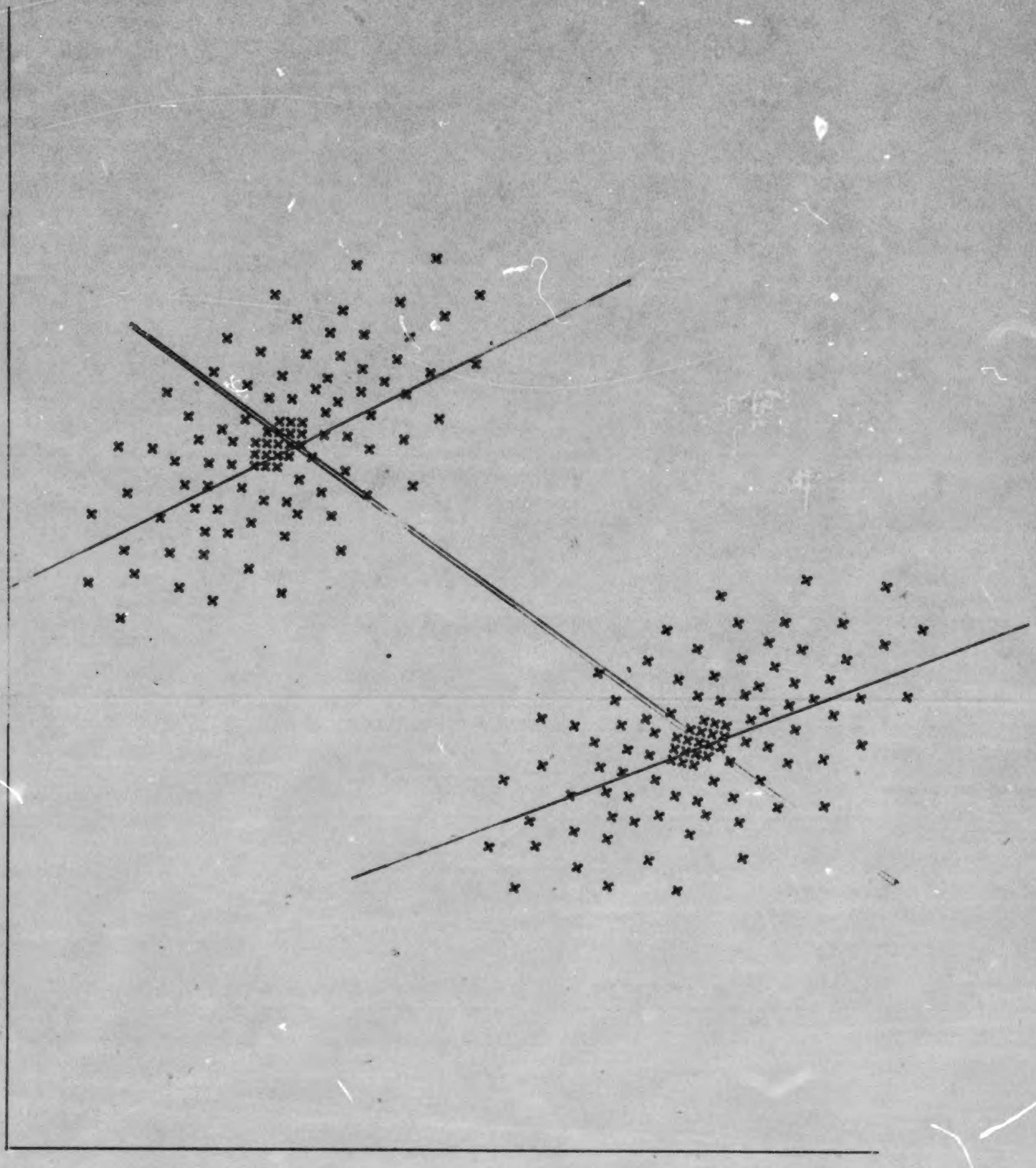
In trying to examine the relationship as it exists for the aggregate of these subgroups, we may well end up with a clouded image of the relationship as it exists in a subgroup or worse, a completely false image.

The question of level of aggregation has been the subject of two recent publications, one by Cronbach (1976) and the other by Knapp (1977). Both authors point out that in assessing the relationships that exist in a set of data, there are three areas of focus: (1) overall, in which a regression line is fit to all of the data without regard for any sort of grouping; (2) between subgroups, in which a regression line is fit to the subgroup means; and within subgroups, in which a regression line is fit to the data of each subgroup. This phenomenon has been referred to as "the ecological fallacy" by Robinson (1950), who demonstrated that substantial variations in both magnitude and valance can be generated by varying the level of aggregation of the same subgroup of individuals. We present one possible example, albeit an extreme one, in Figure 6.3. The overall and between subgroups relation is negative; within subgroups, it is positive.

Given the unique nature of the sites included in this study, it does not seem at all unreasonable in the light of the preceeding discussion to question whether the assessment of career education can truly be accomplished at a national group level. The implementation of career education is by no means standard or uniform. Substantial differences

Figure 6.3

Negative Overall Regression, Positive Within Groups Regression



between the projects with respect to implementation have been found in this evaluation; it is possible, therefore, that what is observed in the overall results will be basically a hodgepodge which possesses no uniform structure and, consequently, resists the efforts of any of the models to account for the variance.

Appropriateness of Unit of Analysis

In most research, the unit of analysis is taken to be the most elemental level of observation. For this research, the most elemental level is the individual student. It can be argued however, that since the teacher is the vehicle for disseminating information, it would be more appropriate to use the classroom as the unit of analysis. Using individual data in such a situation may result in substantial proportions of outcome variation being attributed to error; consequently, a lesser proportion is available for the examination of effects that can be attributed to group membership or process.

Use of the classroom as the unit of analysis is only possible at the fifth grade. For the eighth and eleventh grades, rarely, if ever, do students remain in the same classroom with the same teacher. Rather, they are exposed to a variety of teachers whose involvement in disseminating career education information may range from none to considerable. Consequently, for these grades, the unit of analysis cannot be any smaller than the building level. This may not be at all inappropriate; for example, it may conceivably turn out that the prime mover in effective implementation of career education is not the teacher but the principal.

In order to assess this issue, analyses were done for all units of analysis under consideration. For the fifth grade, these were student, classroom, and building, while for the eighth and eleventh grades, these units were student and building.

Models Applied to Overall Aggregation of Individual Students

Data from all sites were pooled for each grade level. The regression analyses necessitated, however, that each student in the analysis have no missing data. Thus, depending on the model and the data it required, the number of available students and consequently, the degrees of freedom, vary considerably.

Means

The pretest and posttest means, standard deviations, and sample sizes are presented in Tables 6.2, 6.3, and 6.4 for grades five, eight, and eleven, respectively. The reader is reminded that the range of possible values for most of these constructs goes from negative to positive. An exact description of the range can be found in Chapter 5 of Volume III. The targetnontarget mean differences for pretest and posttest are also presented, as are the pretestposttest differences, in order to have some assessment of each construct's sensitivity to growth. Finally, the squared pretestposttest correlations are presented.

The first thing to be noted is the wide disparity that exists between the target and nontarget sample sizes; typically,

Table 6.2
Pretest and Posttest Statistics
Grade 5

Construct	Group	PRETEST Mean (N)	PRETEST S.D.	POSTTEST Mean (N)	POSTTEST S.D.	GROWTH	PRE/POST SQUARED CORRELATION
Occupational self-awareness	Target	17.0 (1473)	6.3	18.0 (1473)	6.0	1.0	.21
	Nontarget	16.1 (272)	5.9	16.9 (272)	6.6	0.8	
	T-NT Diff.	.9		1.1		0.2	
Work values	Target	34.2 (1940)	4.3	34.6 (1940)	4.4	0.4	.15
	Nontarget	33.1 (464)	4.3	34.3 (464)	4.5	1.2	
	T-NT Diff.	1.1		0.3		-0.8	
Interest in career preparation	Target	NA					
	Nontarget						
	T-NT Diff.						
Attitudes towards work	Target	27.8 (1536)	5.5	29.9 (1536)	5.5	2.1	.32
	Nontarget	26.1 (271)	5.2	26.9 (271)	5.3	0.8	
	T-NT Diff.	1.7		3.0		1.3	
Knowledge of work values	Target	39.2 (1459)	3.8	40.4 (1459)	4.0	1.2	.30
	Nontarget	38.1 (262)	3.8	38.6 (262)	4.3	0.5	
	T-NT Diff.	1.1		1.8		0.7	
Decision making	Target	NA					
	Nontarget						
	T-NT Diff.						
Job seeking/ job getting	Target	47.7 (649)	5.2	48.7 (649)	5.8	1.0	.37
	Nontarget	47.3 (220)	5.3	47.7 (220)	5.2	0.4	
	T-NT Diff.	0.4		1.0		0.6	
Career awareness	Target	20.1 (1909)	2.4	20.7 (1961)	2.2	0.6	.21
	Nontarget	19.8 (355)	2.2	19.9 (367)	2.5	0.1	
	T-NT Diff.	0.3		0.8		0.5	
Economic awareness	Target	8.5 (1910)	1.8	9.0 (1910)	1.7	0.5	.14
	Nontarget	8.2 (372)	1.8	8.5 (372)	1.9	0.3	
	T-NT Diff.	0.3		0.5		0.2	
Academic perceptions	Target	51.1 (2075)	9.8	51.9 (2075)	10.1	0.8	.37
	Nontarget	49.2 (363)	9.3	51.5 (363)	9.8	2.3	
	T-NT Diff.	1.9		0.4		-1.5	
Social/ personal perceptions	Target	50.6 (2075)	9.5	48.8 (2075)	10.1	-1.8	.25
	Nontarget	49.7 (363)	9.8	48.0 (363)	10.3	-1.7	
	T-NT Diff.	0.9		0.8		-0.1	

Table 6.3

Pretest and Posttest Statistics
Grade 8

		PRETEST		POSTTEST			
Construct	Group	Mean (N)	S.D.	Mean (N)	S.D.	GROWTH	PRE/POST SQUARED CORRELATION
Occupational self-awareness	Target	22.8 (2151)	7.5	23.6 (2151)	7.8	0.8	
	Nontarget	20.5 (175)	8.0	19.8 (175)	9.1	-0.7	.36
	T-NT Diff.	2.3		3.8		1.5	
Work values	Target	64.9 (2242)	7.3	65.0 (2242)	7.1	0.1	
	Nontarget	63.5 (240)	7.5	62.6 (240)	7.1	-0.9	.28
	T-NT Diff.	1.4		2.4		1.0	
Interest in career preparation	Target	10.4 (2253)	3.6	10.7 (2253)	3.7	0.3	
	Nontarget	11.5 (240)	3.5	11.6 (240)	3.4	0.1	.19
	T-NT Diff.	-1.1		-0.9		0.2	
Attitudes towards work	Target	12.6 (1817)	2.4	12.8 (1817)	2.3	0.2	
	Nontarget	11.5 (166)	2.3	11.9 (166)	2.1	0.4	.19
	T-NT Diff.	1.1		0.9		-0.2	
Knowledge of work values	Target	69.8 (593)	8.3	69.5 (700)	9.2	-0.3	
	Nontarget	70.3 (98)	6.6	68.2 (111)	7.7	-2.1	.50
	T-NT Diff.	-0.5		1.3		1.8	
Decision making	Target	13.0 (1924)	2.1	13.3 (1924)	2.1	0.3	
	Nontarget	12.2 (219)	2.0	12.1 (219)	2.4	-0.1	.30
	T-NT Diff.	0.8		1.2		0.4	
Job seeking/ job getting	Target	31.3 (1405)	3.6	32.4 (1405)	3.9	1.1	
	Nontarget	29.2 (128)	3.3	30.1 (128)	3.5	0.9	.23
	T-NT Diff.	2.1		2.3		0.2	
Career awareness	Target	33.2 (2556)	4.6	34.4 (2556)	4.5	1.2	
	Nontarget	32.1 (205)	4.3	32.7 (205)	4.6	0.6	.16
	T-NT	1.1		1.7		0.6	
Economic awareness	Target	7.4 (2811)	1.4	7.4 (2811)	1.5	0	
	Nontarget	7.2 (209)	1.4	6.8 (209)	1.4	-0.4	.04
	T-NT Diff.	0.2		0.6		0.4	
Academic perceptions	Target	49.4 (1668)	9.9	48.1 (1668)	9.3	-1.3	
	Nontarget	49.9 (154)	10.9	48.3 (154)	10.2	-1.6	.44
	T-NT Diff.	-0.5		-0.2		0.3	
Social/ personal perceptions	Target	50.6 (1668)	9.9	49.1 (1668)	10.6	-1.5	
	Nontarget	48.6 (154)	11.1	49.3 (154)	10.0	0.7	.36
	T-NT Diff.	2.0		-0.2		-2.2	

Table 6.4

Pretest and Posttest Statistics
Grade 11

		PRETEST		POSTTEST			
Constructs	Group	Mean (N)	S. D.	Mean (N)	S.D.	GROWTH	PRE/POST SQUARED CORRELATION
Occupational self-awareness	Target	4.1 (1272)	5.4	5.2 (1272)	6.4	1.1	
	Nontarget	4.8 (147)	5.6	6.7 (147)	5.3	1.9	.34
	T-NT Diff.	-0.7		-1.5		-0.8	
Work values	Target	66.7 (1523)	6.0	65.3 (1523)	6.8	-1.4	
	Nontarget	66.2 (72)	6.1	68.1 (72)	5.7	1.9	.22
	T-NT Diff.	0.5		-2.8		-3.3	
Interest in career preparation	Target	11.0 (1528)	3.6	11.9 (1528)	3.6	0.9	
	Nontarget	11.5 (72)	3.8	12.1 (72)	3.6	0.6	.21
	T-NT Diff.	-0.5		-0.2		0.3	
Attitudes towards work	Target	8.1 (1677)	1.6	8.1 (1677)	1.6	0	
	Nontarget	7.8 (76)	1.6	7.8 (76)	1.4	0	.15
	T-NT Diff.	0.3		0.3		0	
Knowledge of work values	Target	84.3 (507)	6.7	82.7 (507)	8.5	-1.6	
	Nontarget	87.1 (32)	4.2	86.9 (32)	7.5	-0.2	.36
	T-NT Diff.	-2.8		-4.2		-1.4	
Decision making	Target	105.8 (735)	11.8	104.6 (735)	13.4	-1.2	
	Nontarget	111.2 (18)	4.5	112.1 (18)	5.8	0.9	.46
	T-NT Diff.	-5.4		-7.5		-2.1	
Job seeking/ job getting	Target	25.8 (947)	3.7	26.2 (947)	3.5	0.4	
	Nontarget	24.4 (26)	2.8	24.5 (26)	3.1	0.1	.48
	T-NT Diff.	1.4		1.7		0.3	
Career awareness	Target	26.1 (1584)	3.5	25.7 (1584)	4.3	-0.4	
	Nontarget	27.5 (161)	2.5	27.9 (161)	2.2	0.4	.16
	T-NT Diff.	-1.4		-2.2		-0.8	
Economic awareness	Target	4.8 (1791)	1.0	4.8 (1791)	1.0	0	
	Nontarget	4.9 (186)	1.0	4.8 (186)	1.0	-0.1	.11
	T-NT	-0.1		0		0.1	
Academic	Target	49.2 (1192)	9.6	48.4 (1192)	9.6	-0.8	
	Nontarget	52.9 (27)	10.1	48.4 (27)	10.0	-4.5	.37
	T-NT	-3.7		0		3.7	
Social/ personal perceptions	Target	51.3 (1192)	9.3	50.8 (1192)	9.8	-0.5	
	Nontarget	49.7 (27)	11.0	52.0 (27)	10.4	2.3	.31
	T-NT Diff.	1.6		-1.2		-2.3	

the nontarget group was from onefourth to onetenth as large as the target group. In addition, as will be discussed in a later section when the models are applied to individual projects, the nontarget students were mostly drawn from only three projects at any grade level. This raised considerable concern about the representativeness of the nontarget sample. Application of the group membership model to the entire data set required the assumption that the nontarget students in these projects could provide a reasonable estimate of the notreatment expectation for target students in all fifteen projects.

These concerns generally were not eased by inspection of the target-nontarget pretest differences. While some outcomes did exist for which the target and nontarget groups were quite similar, the general pattern was for the two groups to differ by onefourth to onefifth of a standard deviation. In some cases, the differences were as much as a third or even a half of a standard deviation. Given pretest differences of this magnitude, it was unlikely that the statistical adjustment of removing pretest from posttest would be adequate.

The amount of growth shown from pretest to posttest was also unencouraging, particularly in light of the fact that fifth graders showed negative growth on one of eleven constructs, eighth graders showed negative growth on seven of thirteen constructs, and eleventh graders showed negative growth on seven of thirteen constructs. This raises various questions about the sensitivity of these constructs to either treatment or process effects, unless we can make the assumption that negative growth for many of these constructs is the norm.

The squared pretest-posttest correlations represented that proportion of the outcome variance for each construct which could be attributed to the pretest performance level. In general, they were moderate in size, indicating that while the measures were probably sufficiently stable to be measuring the same constructs at pretest and posttest, treatment and/or process might be able to account for a substantial portion of the outcome variance. The presence of extremely low squared correlations for the "Career Awareness" and "Economic Awareness" constructs at the eighth and eleventh grades was indicative of the unstable nature of these two constructs. This is discussed more fully in Volume III, but it does serve as a reminder that any conclusions drawn regarding these two constructs should be considered suspect.

Tables 6.5, 6.6, 6.7 present the results of the group membership model applied to the learner outcome constructs, the SOS second order scores, the total test scores and the discriminant scores. In order to indicate whether target or nontarget scored higher on outcomes after controlling for pretest differences, a minus sign has been placed next to the proportion of outcome construct variance explained for all measures where target was lower. For instance, the proportion of outcome variance explained by the group membership model for "Social/Personal Perceptions" in grade 8 is

Table 6.5

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 5

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	5.223 (1,1741)	.002	.003	.000
Work values	.000 (1,2400)	-.000	.000	.003
Interest in career preparation				
Attitudes towards work	46.878 (1,1803)	.017	.025	.004
Knowledge of work values	25.755 (1,1717)	.010	.014	.002
Decision making				
Job seeking/job getting	4.325 (1,865)	.003	.005	.009
Career awareness	38.420 (1,2260)	.013	.016	.001
Economic awareness	20.502 (1,2278)	.008	.009	.000
Academic perceptions	3.434 (1, 2434)	.001	.002	.001
Social/personal perceptions	.424 (1, 2434)	.000	.001	.000
Reading achievement				
Math achievement				
Ohio, Part 1	74.332 (1, 2099)	.021	.034	.006
Ohio, Part 2	18.137 (1, 1860)	.009	.010	.001
PECE	4.434 (1, 739)	.004	.006	.001
New Mexico One	.000 (1, 2400)	.000	.000	.004
New Mexico Six (1-10)				
New Mexico Six (11-20)				
New Mexico Two, Seven, Eight				
Cognitive growth discriminant	48.141 (1, 1583)	.017	.029	.004
Affective growth discriminant	46.396 (1, 1657)	.019	.027	.004
Desire to Work	2.314 (1,2004)	.001	.001	.000

Table 6.6

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences
Grade 8

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	20.898 (1,2322)	.006	.009	.000
Work values	17.346 (1,2478)	.005	.007	.004
Interest in career preparation	2.489 (1,2409)	-.001	.001	.005
Attitudes towards work	5.937 (1,1979)	.002	.002	.002
Knowledge of work values	5.496 (1,687)	.004	.008	.000
Decision making	34.224 (1,2139)	.011	.016	.005
Job seeking/job getting	9.174 (1,1529)	.003	.006	.003
Career awareness	13.785 (1,2757)	.003	.005	.000
Economic awareness	27.144 (1,3016)	.007	.009	.005
Academic perceptions	.032 (1, 1818)	.000	.000	.001
Social/personal perceptions	3.654 (1, 1818)	.002	.002	.001
Reading achievement				
Math achievement				
Ohio, Part 1	220.134 (1,4129)	.037	.050	.007
Ohio, Part 2	213.385 (1,4129)	.040	.049	.003
PECE	11.145 (1, 743)	.007	.014	.002
New Mexico One	16.122 (1, 2687)	.004	.006	.004
New Mexico Six (1-10)	33.952 (1, 2122)	.011	.016	.004
New Mexico Six (11-20)	0 .000 (1, 2489)	.000	.000	.006
New Mexico Two, Seven, Eight				
Cognitive growth discriminant	20.460 (1,1364)	.006	.015	.002
Affective growth discriminant	259.772 (1,4129)	.038	.059	.002
Dsire to Work	35.104 (1,2194)	.013	.016	.000

Table 6.7

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 11

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	4.245 (1,1415)	-.002	.003	.001
Work values	17.501 (1,1591)	-.009	.011	.001
Interest in career preparation	0.000 (1,1596)	.000	.000	.000
Attitudes towards work	.000 (1,1749)	.000	.000	.000
Knowledge of work values	3.210 (1,535)	-.004	.006	.001
Decision making	1.498 (1,749)	-.001	.002	.000
Job seeking/job getting	1.938 (1,969)	.001	.002	.001
Career awareness	26.115 (1,1741)	-.012	.015	.000
Economic awareness	.000 (1,1973)	-.000	.000	.000
Academic perceptions	2.430 (1, 1215)	.002	.002	.002
Social/personal perceptions	1.926 (1, 1215)	-.001	.002	.006
Reading achievement				
Math achievement				
Ohio, Part 1	20.462 (1,1574)	-.010	.013	.000
Ohio, Part 2	0.000 (1,1389)	.000	.000	.000
PECE	.000 (1,401)	.000	.000	.000
New Mexico One	11.387 (1,1749)	-.005	.006	.000
New Mexico Six (1-10)	12.550 (1,1411)	-.007	.009	.000
New Mexico Six (11-20)	.000 (1,1596)	.000	.000	.000
New Mexico Two, Seven, Eight	4.539 (1,805)	-.003	.006	.000
Cognitive growth discriminant	0.000 (1,975)	-.000	.000	.000
Affective growth discriminant	.000 (1,1293)	.000	.000	.000
Desire to Work	4.360 (1,1456)	-.002	.003	.000

shown as "-.002"; this means that after adjusting for pretest differences, the group membership model could account for .2 percent of the outcome variance and that the adjusted nontarget group mean was higher than the adjusted target group mean. Each of the tables was then inspected for the relative sizes of the proportion of outcome variance explained by group membership and by the group membershippretest interaction. Rather than testing the interactions for statistical significance, the interaction proportion exceeding or being close to the group membership proportion was taken as sufficient indication that the effect of group membership was in and of itself insufficient to account for the posttest results. Classical statistical theory requires that any attempts to ascribe meaning to a main effect be dropped in the presence of an interaction effect.

This inspection indicated that to compare treatment and interaction effects for these data was moot; across all three grades, the group membership model, with only a few exceptions, failed to account for significant proportions of variance in any of the learner outcome measures. Most of the measures showed less than one percent of their variance being accounted for, although the Fstatistics were almost all significant at least the .05 level. This, we feel, is a dramatic illustration of the difference between statistical significance and educational significance. Statistically, it can be said that, according to the group membership model, the effects of treatment at the fifth and eighth grades were uniformly positive and significant; at the eleventh grade, the effects of treatment were uniformly negative and significant. The uniformity of the results at each grade level does tend to lend them some significance, at least to the extent that it can be said that treatment seems to produce positive results at the fifth and eighth grades and negative results at the eleventh grade. But when the size of the variance accounted for is considered, it must be recognized that the statistical significance is almost strictly a function of the large sample sizes and is not a function of the presence of an effect that has played any sort of substantive role in determining outcome performance levels.

As mentioned earlier, however, there did seem to be a few exceptions in terms of measures that were sensitive to treatment. Most notable was the Ohio Test, Part 1, which reflected treatment effects at all three grade levels. The construct based most directly on these items "Career Awareness" also reflected treatment effect, although not as much. The affective discriminant showed a treatment effect at the fifth and eighth grades, and "Attitudes Towards Work" and the cognitive discriminant showed a treatment effect at the fifth grade. For all these measures, the proportion of criterion variance accounted for ranged from two to five percent. As discussed in Chapter 2, this amount of variance being accounted for by group membership is generally indicative of difference between the group means on the order of a third to a half of a standard deviation. Differences of this magnitude as usually considered to possess educational, as well as statistical, significance.

While the intact test thus seemed to be a more sensitive measure of treatment than the constructs in the case of the Ohio Test, Part 1, this was not a uniform tendency for the intact tests. The "Knowledge of Work Values" construct, which was heavily based on the PECE items, tended to show more sensitivity than the PECE, for example, especially at grade 5.

All of the measures indicated that evaluation of career education at the eleventh grade will be extremely difficult with the group membership model. Little, if any of the outcome variance was explained. To some extent, the extremely low nontarget sample size can probably be blamed for this. The possibility will need to be considered, however, that either career education is not as effective at the eleventh grade, or that all of the instrumentation developed to assess learner outcomes at the eleventh grade is insensitive to the areas in which career education is producing change.

In Tables 6.9 and 6.10, the results of the group membership model applied to the plans and expectations data are presented for grades 8 and 11, respectively. Data on plans and expectations was not considered appropriate for grade 5 and was not collected. In order to control for initial differences in the absence of a "pre" measure, plans and expectations were regressed on the following demographic

Table 6.8

R^2 Between Students' Plans and Expectations Measures and Demographics (Proportion of Outcome Variation Explained by Demographic Differences)

	Grade 8	Grade 11
Expected schooling	.42	.39
Discussing plans	.05	.13
Desired schooling	.25	.26
Amt. of paid work	.05	.15
Amt. of unpaid work	.04	.04

Table 6.9

Posttest Differences for Target and Nontarget Students' Plans and Expectations And Work Experience Constructs After Controlling for Demographic Differences*
Grade 8

Construct	F(1,508)	Group: Prop. Outcome Variance	Target $\bar{X}$	Target SD	Nontarget $\bar{X}$	Nontarget SD	Group: Prop. Crit. Variance	Interaction: Prop. Outcome Variance
Expected Schooling	1.040	-.0012	3.9 (4919)	1.5	3.9 (471)	1.4	.0020	.0151
Discussing Plans	7.305	-.0130	14.3 (4208)	2.7	14.5 (409)	2.8	.0144	.0352
Desired Schooling	3.654	-.0052	4.1 (4938)	1.6	4.1 (472)	1.6	.0072	.0141
Amt. of Paid Work	.027	.0001	2.0 (4936)	1.2	1.8 (476)	1.1	.0001	.0102
Amt. of Unpaid Work	5.841	-.0106	1.4 (4959)	.8	1.4 (472)	.8	.0115	.0322

*Demographic differences can be found in Chapter 4.

Note: The sample sizes in these tables are based on the Student Information Form, as it contained all the information necessary. Consequently, these samples are somewhat larger than the matched samples.

Table 6.10

Posttest Differences for Target and Nontarget Students' Plans and Expectations And Work Experience Constructs After Controlling for Demographic Differences*

Grade 11

Construct	F(1,699)	Group: Prop. Outcome Variance	Target X̄	Target SD	Nontarget X̄	Nontarget SD	Group: Prop. Crit. Variance	Interaction: Prop. Outcome Variance
Expected Schooling	1.334	.0011	3.9 (3808)	1.4	4.0 (659)	1.3	.0019	.0209
Discussing Plans	1.981	.0024	16.1 (3423)	2.9	15.7 (617)	2.7	.0028	.0115
Desired Schooling	.616	.0006	4.3 (3848)	1.5	4.5 (667)	1.3	.0009	.0167
Amt. of Paid Work	.759	-.0009	2.8 (3849)	1.9	2.8 (675)	1.9	.0011	.0069
Amt. of Unpaid Work	.340	.0005	1.4 (3861)	.8	1.3 (671)	.7	.0005	.0167

*Demographic differences can be found in Chapter 4.

Note: The sample sizes in these tables are based on the Student Information Form, as it contained all the information necessary. Consequently, these samples are somewhat larger than the matched samples.

variables: sex, age, white/nonwhite, black/nonblack, Spanish/non-Spanish, number of siblings, father's education level, mother's educational level, amount of time spent on homework, school grades, and amount of television watched. The squared multiple correlation coefficients are presented in Table 6.8; they represent the proportion of variance in the plans and expectations measures accounted for by demographics. As might be expected, plans about schooling were strongly related to the student's background, with demographics accounting for about forty percent of the variance in both grades. For the other plans and expectations measures, the relationship was minimal.

The plans and expectations measures were considered separately from the other measures for several reasons: they did not have a corresponding pretest, they were not being used in reporting results to local projects, and they were developed strictly on the basis of the content validity of their component items. Since no pretest was available, the posttests' target and nontarget group means are presented in Tables 6.9 and 6.10 along with the proportions of variance accounted for. As with the learner outcome tables, a minus sign was placed next to the proportion of outcome variance explained in order to indicate those cases in which the nontarget group scored higher than the target group on the outcomes, after demographic differences had been statistically controlled for. The proportion of variance explained by the interaction between demographics and group membership revealed a substantial interaction effect. Consequently, it would have been invalid to attach significance to group membership effects, although as with the learner outcome constructs, these effects were quite minimal.

Process Model

For purposes of this study, process was considered to have been measured by the students' responses regarding their participation frequencies in various career education activities (20 activities for fifth graders, 27 activities for eighth and eleventh graders). Due to the multiple predictors, no single signed number existed which would indicate that the effect of process was positive or negative. In order to get some picture of the valence of the process effect, the activities with the highest partial correlations between themselves and each of the outcome measures were reported. Partial correlations were used since the purpose was to assess the relationship between the activities and the outcomes after the effects of either pretest in demographics had been removed. An inspection of the signs of these partial correlations should give a rough idea about the direction of a process effect.

As with the discussion of the group membership model, the results concerning the learner outcome constructs and the plans and expectation measures are discussed separately. Tables 6.11, 6.12 and 6.13 present these results for the learner outcome constructs for grades five, eight and eleven. Included in these tables are the F-statistic to test for the

Table 6.11

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities
Grade 3

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.928 (20,1134)	.026	.032	.027	16(.11),13(-.11),18(.10),2(-.09),17(.08)
Work values	3.151 (20,1616)	.032	.037	.013	17(.13),2(-.12),16(.10),10(-.09),18(.08)
Interest in career preparation					
Attitudes towards work	2.750 (20,1170)	.030	.044	.011	2(-.14),20(-.13),12(-.12),15(-.12),18(-.12)
Knowledge of work values	2.477 (20,1126)	.029	.041	.018	15(-.19),18(.13),9(-.13),20(-.13),16(.11)
Decision making					
Job seeking/job getting	1.383 (20,353)	.031	.045	.032	2(-.18),9(-.16),15(-.13),13(-.11),18(.11)
Career awareness	3.066 (20,1333)	.031	.038	.017	2(-.18),15(-.17),5(.16),13(-.13),7(-.12)
Economic awareness	2.552 (20,1501)	.028	.033	.007	18(.12),16(.11),2(-.10),15(-.10), 12(-.08)
Academic perceptions	1.717 (20, 1635)	.014	.022	.010	20(-.12),15(-.10),9(-.09),2(-.07),6(-.06)
Social/personal perceptions	2.673 (20, 1635)	.025	.034	.011	19(.15),16(.11),17(.11),2(.11),11(.10)
Reading achievement					
Math achievement					
Ohio, Part 1	3.066 (20,1426)	.025	.040	.012	2(-.08),6(.07),20(-.07),9(-.07),5(-.07)
Ohio, Part 2	2.046 (20.1240	.029	.031	.040	20(-.09),12(-.08),2(-.06),15(-.05),19(-.05)
PECE	1.062 (20,472)	.030	.040	.034	16(.11),17(.11),19(.08),7(.08),1(.07)
New Mexico One	3.959 (20,1616)	.035	.046	.011	17(.11),11(.08),10(-.07),2(-.07),5(.06)
New Mexico Six (1-10)	4.607 (20,9)	.604	.606	.334	4(-.29)16(.22),11(.22),20(-.21),2(-.19)
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.234 (20,1039)	.024	.040	.013	15(-.08),20(-.07),2(-.07),1(.06),18(.06)
Affective growth discriminant	3.044 (20,087)	.037	.052	.011	5(.11),15(-.09),2(-.09),17(.08),9(-.07)
Desire to Work	1.867 (20,1318)	.024	.027	.017	17(.09),5(.07),15(-.05),14(.05),16(.04)

Table 6-12

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities
Grade 8

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	3.033 (27,1566)	.032	.047	.022	16(17),18(.17),25(-.17),17(.14),2(-.14)
Work values	2.917 (27,1575)	.035	.046	.023	18(.19),17(.16),19(.14),16(.13),6(.12)
Interest in career preparation	9.065 (27,1579	.105	.131	.020	23(.33),27(.33),22(.32),8(.28),19(.27)
Atittudes towards work	3.281 (27,1284)	.051	.063	.012	18(.18),25(-.15),9(-.14),13(-.13),7(-.12)
Knowledge of work values	1.621 (27,371)	.055	.101	.027	25(-.23),18(.20),9(-.19),4(-.18),13(-.18)
Decision making	3.972 (27,1375)	.050	.070	.018	25(-.23).18(.19),12(-.16),2(-.16),9(-.16)
Job seeking/job getting	2.929 (27,1014)	.036	.071	.010	18(.24),25(-.18),9(-.15),15(-.14),13(-.13)
Career awareness	4.980 (27,1842)	.042	.066	.021	25(-.23),13(-.19),9(-.19),15(-.18),7(-.18)
Economic awareness	4.791 (27,1997)	.048	.064	.013	18(.16),25(-.15),7(-.13),2(-.12),4(-.12)
Academic perceptions	1.280 (27, 1174)	.016	.030	.022	17(-.18),18(-.16),6(-.15),3(-.15),19(-.12)
Social/personal perceptions	1.968 (27, 1174)	.027	.047	.017	17(.21),11(.19),16(.19),18(.18),6(.15)
Reading achievement					
Math achievement					
Ohio, Part 1	2.600 (27,2629)	.018	.026	.009	15(-.06),10(.05),25(-.05),6(-.04),3(.04)
Ohio, Part 2	2.201 (27,2629)	.017	.025	.010	20(.05),10(.05),15(-.05),18(-.04),9(.04)
PECE	1.567 (27,419)	.044	.086	.029	25(-.14),4(-.11),22(-.10),18(.10),9(-.09)
New Mexico One	3.660 (27,1704)	.039	.053	.019	18(.12),19(.11),17(.09),16(.09),11(.08)
New Mexico Six (1-10)	3.952 (27,1368)	.049	.071	.015	25(-.12),9(-.11),12(-.11),21(-.10),18(.10)
New Mexico Six (11-20)	9.357 (27,1579)	.108	.134	.020	27(.25),23(.24),8(.21),22(.21),19(.21)
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.820 (27,910	.021	.049	.017	25(-.10),13(-.09),9(-.09),4(-.09),18(.08)
Affective growth discriminant	2.601 (27,2629)	.014	.026	.005	2(-.06),16(.05),24(.05),20(.04),14(.04)
Desire to Work	1.867 (20,1318)	.024	.027	.017	17(.09),5(.07),15(-.05),14(.05),16(.04)

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Table 6 -13

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Grade 11

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	3.022 (27,1020)	.046	.070	.045	9(-.22),18(.19),16(.15),13(-.15),12(-.14)
Work values	2.816 (27,1086)	.049	.063	.036	16(.21),18(.20),19(.19),6(.19),27(.17)
Interest in career preparation	4.759 (27, 1089)	.081	.103	.016	23(.31),22(.30),6(.26),5(.26),27(.26)
Atittudes towards work	2.366 (27,1183)	.043	.051	.018	13(-.14),18(.13),16(.12),9(- .12),7(-.10)
Knowledge of work values	2.546 (27,349)	.098	.115	.040	9(-.34), 12(-.24),13(-.23),20(-.20),10(-.20)
Decision making	1.091 (27,536)	.027	.042	.023	9(-.19),10(-.17),18(.17),16(.14),7(-.13)
Job seeking/job getting	1.997 (27,674)	.037	.070	.028	9(-.26),13(-.21),25(-.19),10(-.19),12(-.18)
Career awareness	1.735 (27,1233)	.030	.036	.022	18(.14),13(-.12),9(-.11),16(.10),7(-.09)
Economic awareness	1.748 (27,1430)	.028	.031	.017	18(.09),7(-.08),4(-.08),9(-.08),16(.07)
Academic perceptions	1.447 (27, 881)	.026	.046	.038	16(-.18),17(-.14),18(-.14),19(-.11),3(-.10)
Social/personal perceptions	2.173 (27, 881)	.043	.069	.024	18(.21),23(.19),8(.19),27(.18),16(.18)
Reading achievement					
Math achievement					
Ohio, Part 1	1.881 (27,1131)	.033	.042	.015	13(-.08),7(-.08),18(.08),2(-.07),9(-.07)
Ohio, Part 2	2.018 (27,1000)	.043	.050	.023	3(-.09),16(-.09),12(.07),18(-.06),17(-.06)
PECE	1.641 (27,248)	.087	.142	.040	9(-.22),2(-.18),12(-.16),11(-.14),4(-.13)
New Mexico One	2.600 (27,1183)	.041	.054	.033	16(.15),27(.14),18(.13),19(.12),22(.11)
New Mexico Six (1-10)	2.331 (27,996)	.046	.051	.027	18(.09),9(-.08),6(.08),3(.08),10(-.08)
New Mexico Six (11-20)	5.402 (27,1089)	.090	.115	.020	23(.25),22(.22),5(.21),3(.20),27(.20)
New Mexico Two, Seven, Eight	1.516 (27,564)	.036	.064	.032	6(.10),21(.10),14(-.07),18(.07),16(.06)
Cognitive growth discriminant	3.115 (27,684)	.075	.104	.033	9(-.20),13(-.18),24(-.13),1(-.12),10(-.11)
Affective growth discriminant	4.047 (27,891)	.084	.105	.029	23(.25),22(.24),27(.20),5(.18),6(.17)
Desire to Work	3.280 (27,984)	.060	.081	.021	16(.16),27(.16),18(.15),23(.13),6(.12)

presence of a process effect, the proportion of outcome variance explained by the process variables, the proportion of criterion variance explained, the proportion of outcome variance attributable to the interaction of the process variables with pretest, and the five activities having the highest partial correlation with each outcome. The activities are listed by number, with the partial correlation in parentheses. The numbers correspond to those on the Student Information Form which appears in Appendix B.2 of this volume.

It is immediately apparent that the process model is accounting for substantially more variance than the group membership model in virtually all the learner outcome measures. For only a few of the measures is less than five percent of the criterion variance at the eighth and eleventh grades being accounted for and at the fifth, about 3 or 4 percent. As with the group membership model, however, it was necessary to first inspect the size of the interaction effects before drawing any final conclusions about the process effect. Constructs such as "Occupational Self-Awareness" had high interaction effects in all three grades; thus, the effect of process is unclear. On the other hand, the constructs "Interest in Career Preparation," "Attitudes Towards Work," "Knowledge of Work Values," "Career Awareness," "Economic Awareness," and "Social/Personal Perceptions" all tended to have much larger process effects than interaction effects for all three grades.

What caused considerable concern, however, is that the effect of process on these constructs is far from uniformly positive. Whether these results are a consequence of some deleterious effect of career education activities or is the result of a subtle confounding of process effect with some other aspect of the milieu that has an apparently deleterious effect is unclear. It may well be that whatever effort career education has on the learner outcomes is not being measured. by these items. What is being measured is a trait where students with low scores are likely to engage in numerous activities. A simpler variation of this hypothesis is that low scoring students might tend to overreport the activity levels. What must be considered in these hypotheses are the concerns raised in the opening section of this chapter regarding level of aggregation and unit of analysis. Because these analyses used the individual student at the overall level of aggregation, a completely false picture of the relationship between process and outcome may have been presented.

Regardless of the reasons, for this set of analyses process appears to have a uniformly negative relationship with all the cognitive constructs and "Academic Perceptions" across all three grades. Positive relationships do exist, on the other hand, with some of the affective constructs and "Social/Personal Perceptions." A further discussion of these relationships should be postponed, however, until the effects of aggregation and unit of analysis have been considered.

It is very interesting to note that the Ohio Test, Part 1, which was particularly sensitive to treatment effects, exhibited considerably less sensitivity to process. This pattern will be examined more fully when the joint effects model is presented. The effect of process on plans and expectations is presented in Tables 6.14 and 6.15. The inclusion of an interaction effect in the process model was deemed inadvisable for these data as the use of eleven background variables and twentyseven activities would have necessitated the use of 297 variables to enter the interaction terms into the model. The degrees of freedom available made the inclusion of these variables inappropriate.

Nonetheless, it was again clear that the process model was accounting for considerably more variation than the group membership model. "Discussing Plans," in particular, exhibited considerable sensitivity to process. More to the point, the effects of process tended to be uniformly positive. Activity 17 (ask my parents questions. . .) had a positive relation to schooling at grade eight while activity 18 (hear that a person can choose any job. . .) was in a similar position at grade eleven. For both grades, activity 3 (talk about jobs. . .) was strongly related to discussing plans, as might be expected, but was also strongly related to amount of work, both paid and unpaid. The amount of variance accounted for, coupled with the uniformity of the results, lends definite support to the notion that process is having a positive effect on plans and expectations.

Table 6.14

Relationships of Students' Plans and Expectations and Work Experience Constructs, After Controlling For Input Differences* with Exposure to Career Education Activities

Grade 8

Constructs	F(27,366)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Key Activity Variables
Expected Schooling	1.121	.0436	.0827	17(.19), 16(.16), 2(-.13), 19(.13), 20(-.12)
Discussing Plans	7.254	.3241	.5351	23(.43), 22(.41), 6(.37), 27(.37), 3(.36)
Desired Schooling	1.279	.0623	.0943	17(.17), 7(-.14), 2(-.13), 20(-.10), 16(.10)
Amt. of Paid Work	1.571	.0979	.1159	4(.14), 3(.11), 6(.08), 27(-.07), 9(.07)
Amt. of Unpaid Work	2.743	.1103	.1286	6(.17), 22(.17), 25(.15), 3(.15), 24(.13)

*Demographic differences are presented in Chapter 4.

Table 6.15

Relationships of Students' Plans and Expectations and Work Experience Constructs, After Controlling For Input Differences,* with Exposure to Career Education Activities

Grade 11

Constructs	F(27,534)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Key Activity Variables
Expected Schooling	1.494	.0426	.0755	18(.22), 11(.17), 3(.16), 16(.15), 23(.13)
Discussing Plans	6.218	.2046	.3144	3(.39), 23(.39), 19(.39), 22(.38), 27(.33)
Desired Schooling	1.939	.0681	.0981	18(.23), 11(.22), 16(.17), 3(.14), 17(.14)
Amt. of Paid Work	1.652	.0669	.0835	26(.10), 16(-.08), 12(.07), 4(.07), 3(-.07)
Amt. of Unpaid Work	2.669	.1139	.1350	20(.21), 1(.18), 3(.16), 4(.15), 5(.15)

*Demographic differences are presented in Chapter 4.

Joint Effects Model

With the separate analyses performed for group membership and process, the data were now examined using the joint effects model. The results are reported in Tables 6.16 to 6.20, with the plans and expectations again being separated from the learner outcome constructs. To facilitate reading these tables, the column labels include the A, B, C designations described at the beginning of this chapter; consequently, the reader can key the results to the balantine in Figure 6.1. All of the proportions listed in the tables are proportions of criterion variance. In order to indicate the direction of the group membership effect, a minus sign is placed before the group proportion for those outcomes where the target group scored lower. Also included in these tables are the Fstatistics for each component (treatment or process) of the joint effects model, the proportion of criterion variance accounted for by the entire model along with the corresponding Fstatistic, and the proportion of criteron variance explained jointly by the components. An F-statistic could not be computed for the joint proportion.

What is immediately apparent from these tables is that when the career education outcomes are assessed by the joint effects model, the contributions of either the joint effects (B) or group membership (A) to accounting for outcome variance are minimal compared to the contribution of process (C). Comparing the process R^2 indicates that for almost all measures process is accounting for over ninety percent of

Table 6.16

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5

Constructs	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness	1.902 (20,1153)	.032	5.853 (1,1153)	.005	.000	2.090 (21,1153)	.037
Work values	3.125 (20,1635)	.037	.000 (1,1635)	-.000	.000	2.977 (21,1635)	.037
Interest in career preparation							
Attitudes towards work	2.258 (20,1189)	.035	28.220 (1,1189)	.022	.009	4.031 (21,1189)	.066
Knowledge of work values	2.152 (20,1145)	.036	12.053 (1,1145)	.010	.005	2.952 (21,1145)	.051
Decision making							
Job seeking/job getting	1.278 (20,572)	.042	3.525 (1,572)	-.006	.003	1.469 . (21,572)	.051
Career awareness	3.104 (20,1552)	.038	32.041 (1,1552)	.019	.000	4.482 (21,1552)	.057
Economic awareness	2.309 (20,1520)	.029	16.622 (1,1520)	.010	.004	3.254 (21,1520)	.043
Academic perceptions	1.785 (20,1634)	.022	2.88 (1,1634)	-.001	.001	1.740 (21,1634)	.022
Social/personal perceptions	2.639 (20,1634)	.032	.256 (1,1634)	.000	.000	2.551 (21,1634)	.033
Reading achievement							
Math achievement							
Ohio, Part 1	2.769 (20,1445)	.035	62.936 (1,1445)	.040	.005	5.994 (21,1445)	.080
Ohio, Part 2	1.948 (20,1259)	.030	4.173 (1,1259)	.003	.001	2.120 (21,1259)	.034
PECE	0.999 (20,491)	.039	.689 (1,491)	.001	.002	1.017 (21,491)	.042
New Mexico One	3.808 (20,1635)	.044	.000 (1,1635)	.000	.002	3.733 (21,1635)	.046
New Mexico Six (1-10)							
New Mexico Six (11-20)							
New Mexico Two, Seven, Eight							
Cognitive growth discriminant	1.620 (20,1058)	.028	38.126 (1,1058)	.033	.012	3.994 (21,1058)	.073
Affective growth discriminant	2.884 (20,1106)	.048	25.438 (1,1106)	.032	.004	4.847 (21,1106)	.084
Desire to Work	1.846 (21,1337)	.028	3.102 (1,337)	.002	-.001	1.920 (21,1337)	.029

Table 6.17

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 8

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness	2.735 (27,1593)	.044	2.480 (1,1592)	.001	.004	2.923 (28,1592)	.049
Work values	2.998 (27,1601)	.048	11.243 (1,1601)	.007	-.001	3.293 (28,1601)	.054
Interest in career preparation	8.857 (27,1605)	.130	.000 (1,1605)	-.000	.001	8.623 (28,1605)	.131
Attitudes towards work	3.222 (27,1310)	.062	(1,1310)	.001	.002	3.231 (28,1310)	.065
Knowledge of work values	1.644 (27,397)	.101	.000 (1,397)	.000	.000	1.585 (28,397)	.101
Decision making	3.882 (27,1401)	.069	12.834 (1,1401)	.008	.002	4.278 (28,1401)	.079
Job seeking/job getting	2.957 (27,1040)	.071	2.217 (1,1040)	.002	.000	2.930 (28,1040)	.073
Career awareness	4.884 (27,1868)	.066	12.558 (1,1868)	.006	-.002	5.045 (28,1868)	.070
Economic awareness	4.683 (27,2023)	.059	5.360 (1,2023)	.002	.001	4.804 (28,2023)	.062
Academic perceptions	1.243 (27,1173)	.029	.494 (1,1173)	.000	.000	1.227 (28,1173)	.029
Social/personal perceptions	1.868 (27.1173	.043	2.152 (1,1173)	-.002	.002	1.968 (28,1173)	.047
Reading achievement							
Math achievement							
Ohio, Part 1	2.099 (27,2655)	.019	313.892 (1,2655)	.103	[illegible]	14.013 (28,2655)	.129
Ohio, Part 2	1.470 (27,2655)	.013	369.081 (1,2655)	.119	[illegible]	15.591 (28,2655)	.141
PECE	1.563 (27,445)	.086	.959 (1,445)	.002	.000	1.541 (28,445)	.088
New Mexico One	3.611 (27,1730)	.053	10.000 (1,1730)	.005	.001	3.839 (28,1730)	.059
New Mexico Six (1-10)	3.797 (27,1394	.068	13.089 (1,1394)	.009	.002	4.285 (28,1394)	.079
New Mexico Six (11-20)	9.152 (27,1605)	.133	.000 (1,1605)	-.000	.001	8.908 (28,1605)	.134
New Mexico Two, Seven, Eight							
Cognitive growth discriminant	1.716 (27,936)	.047	6.930 (1,936)	.007	.002	1.986 (28,936)	.056
Affective growth discriminant	1.572 (27,2655)	.013	551.610 (1,2655)	.168	.012	22.731 (28,2655)	.193
Desire to Work	3.420 (27,1421)	.060	15.631 (1,1421)	.011	.001	3.957 (28,1421)	.072

Table 6.18

Joint Effects of Group Membership and Exposure to Career Education Activities
On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 11

Constructs	Process (C) F(df)	Process (C) Prop. Crit. Variance	Group (A) F(df)	Group (A) Prop. Crit. Variance	Joint (B) Prop. Crit. Variance	Union (A+B+C) F(df)	Union (A+B+C) Prop. Crit. Variance
Occupational self-awareness	2.776 (27,1046)	.067	.000 (1,1046)	-.000	.000	2.799 (28,1046)	.070
Work values	2.663 (27,1112)	.060	10.707 (1,1112)	.009	.003	3.059 (28,1112)	.072
Interest in career preparation	4.745 (27,1115)	.103	.000 (1,1115)	-.000	.000	4.575 (28,1115)	.103
Attitudes towards work	2.389 (27,1209)	.051	.000 (1,1209)	.000	.000	2.304 (28,1209)	.051
Knowledge of work values	2.436 (27,373)	.148	1.399 (1,373)	-.003	.006	2.499 (28,373)	.157
Decision making	1.106 (27,56)	.050	1.106 (1,562)	-.002	.000	1.106 (28,562)	.052
Job seeking/job getting	2.023 (27,700)	.072	2.875 (1,700)	.004	-.002	2.002 (28,700)	.074
Career awareness	1.692 (27,1259)	.035	14.181 (1,1259)	-.011	.001	2.195 (28,1259)	.047
Economic awareness	1.814 (27,1456)	.033	1.689 (1,1456)	-.001	-.001	1.749 (28,1456)	.033
Academic perceptions	1.379 (27,880)	.042	1.140 (1,280)	.001	.001	1.389 (28,880)	.044
Social/personal perceptions	2.145 (27,880)	.066	.055 (1,800)	-.000	.000	2.084 (28,880)	.066
Reading achievement							
Math achievement							
Ohio, Part 1	1.943 (27,1157)	.043	15.427 (1,1157)	-.013	.024	2.369 (28,1157)	.054
Ohio, Part 2	1.966 (27,1026)	.049	0.000 (1,1026)	.000	.001	1.940 (28,1157)	.050
PECE	1.659 (27,274)	.140	.521 (1,274)	-.002	.001	1,637 (28,274)	.143
New Mexico One	2.341 (27,1209)	.052	6.322 (1,1209)	-.005	.002	2.540 (28,1209)	.059
New Mexico Six (1-10)	2.215 (27,1022)	.055	4.077 (1,1022)	.004	.002	2.378 (28,1022)	.061
New Mexico Six (11-20)	5.371 (27,1115)	.115	.000 (1,1115)	-.000	.000	5.163 (28,1115)	.115
New Mexico Two, Seven, Eight	1.493 (27,590)	.064	1.120 (1,590)	-.002	.000	1.479 (28,590)	.066
Cognitive growth discriminant	3.067 (27,710)	.104	0.000 (1,710)	.000	.000	2.958 (28,710)	.104
Affective growth discriminant	3.996 (27,917)	.105	.000 (1,917)	.000	.000	3.853 (28,917)	.105
Desire to Work	3.291 (27,1010)	.080	1.010 (1,1010)	-.001	.001	3.210 (28,1010)	.082

Table 6.19

Joint Effects of Group Membership and Exposure to Career Education Activities on Plans and Expectations and Work Experience, Adjusting for Input Differences
Grade 8

	Process (C)		Group (A)		Joint (B)	Union (A + B + C)	
Constructs	**F(27,365)**	**Prop. Criterion Variance**	**F(1,365)**	**Prop. Criterion Variance**	**Prop. Criterion Variance**	**F(28,365)**	**Prop. Criterion Variance**
Expected Schooling	1.117	.0826	.010	.0000	.0001	1.078	.0827
Discussing Plans	7.068	.5229	1.258	-.0034	.0107	7.000	.5370
Desired Schooling	1.271	.0940	3.275	-.0090	.0012	1.358	.1042
Amount of Paid Work	1.592	.1178	.628	.0017	-.0017	1.536	.1178
Amount of Unpaid Work	1.636	.1210	4.377	-.0120	.0091	1.852	.1421

Table 6.20

Joint Effects of Group Membership and Exposure to Career Education Activities on Plans and Expectations and Work Experience, Adjusting for Input Differences Grade 11

	Process (C)		Group (A)		Joint (B)	Union (A + B + C)	
Constructs	**F(27,365)**	Prop. Criterion **Variance**	**F(1,365)**	Prop. Criterion **Variance**	Prop. Criterion **Variance**	**F(28,533)**	Prop. Criterion **Variance**
Expected Schooling	1.484	.0752	3.664	.0069	.0008	1.579	.0829
Discussing Plans	6.230	.3156	.837	.0016	-.0008	6.024	.3164
Desired Schooling	1.956	.0991	4.123	.0077	-.0003	2.028	.1065
Amount of Paid Work	1.624	.0823	.073	-.0001	.0013	1.592	.08[illegible]7
Amount of Unpaid Work	2.645	.1340	1.101	.0021	.0012	2.614	.1373

the criterion variance that has been explained by the entire model. The only exceptions to this pattern are the discriminant measures, "Career Awareness" Ohio Test, Part 1 at grade five, both parts of the Ohio Test and the affective discriminant at grade eight, and "Career Awareness" and Ohio Test, Part 1 at grade eleven. This once again indicates that the cognitive items of the Ohio Test, taken as a whole, are apparently representing a measure that is sensitive to treatment effect but not to process.

In general, the joint effects model provided no additional insights over and above those gained by the other two models. This is reflected clearly by the virtually nonexistant proportions of criterion variance attributable to the joint effect. The treatment and process components were operating virtually independently of one another. The implication of this finding is that the activity variables that measure process are not sensitive to those differences in process that would be caused by membership in either the target or nontarget group. For all intents and purposes, group membership and process effect are accounting for disjoint portions of outcome criterion variance, with the portion accounted for by process being substantially larger. In other words, if the educational experiences of target students vary from those of nontarget students, thus producing a treatment effect, the experimental differences that produced the effect are not being reflected in the activities. On the other hand, the activities are measuring some part of the student's experiences that are also reflected in the learner outcome measures. The group membership and process models seem to be accessing separate portions of the student's experiences, although judging from the proportion of variance explained, the portion accessed by process has more bearing on performance on the outcome measures.

Summary

In this section, analysis of student data at the overall level of aggregation yielded three conclusions:

- the group membership data indicated that the treatment effect was minimal, if not nonexistent; where the interaction effect was small, the treatment effect tended to be positive for the fifth and eighth grades.
- The process model indicated a moderate to strong relationship between process and outcome; the relationship was almost exclusively negative for the cognitive constructs, however, and mixed for the affective constructs.
- The joint effects model indicated that the effects of process and treatment on outcome were virtually disjoint, with process accounting for the bulk of the variance explained by the joint effects model; the activities chosen to measure the process of career education were not sensitive to those aspects (assuming they exist) of membership in a career education project that affect performance on outcome.

The poor showing of the group membership model raised strong concerns about the appropriateness of the nontarget group sample as a source of notreatment expectations. Chapter 4 documented that differences existed between the target and nontarget groups with respect to demographic characteristics, and, as was noted earlier in this chapter, the nontarget sample at each grade came primarily from three sites. It is therefore incumbent upon us to consider whether it would be more appropriate to use the nontarget groups only to generate notreatment expectations for the target groups in their sites.

The apparently negative relationship between process and outcome also raised strong concerns. It was recognized that insufficient information existed for exploration of the existence of some subtle underlying influence that could result in the negative relation. The possibility of the negative relation being an artifact of level of aggregation was available, however. In other words, it was possible to investigate whether subgroups in the sample could actually have a positive relationship, even though, due to their pre and posttest means, aggregation of their data yielded an apparently negative relationship.

Given the unique nature of the sites included in this study, it does not seem at all unreasonable, in the light of the preceeding discussion, to question whether the assessment of career education can truly be accomplished at a national group level. The implementation of career education is by no means standard or uniform; substantial differences between the projects with respect to implementation were highlighted in Chapter 5. It is possible, therefore, that what has been observed in the analyses of the overall data is basically a hodgepodge which possesses no uniform structure and, consequently, resists the efforts of any of the models to account for the outcomes.

It therefore seemed appropriate to lower the level of aggregation from the overall to project level, while retaining the student as the unit of analysis. This would presumably yield more appropriate targetnontarget comparisons and, perhaps, reveal the presence of positive process-outcome relations.

Models Applied to Project Aggregation of Individual Students

Three projects were available at each grade level which possessed a sufficient number of target and nontarget students for application of each of the three models to the student data. Prepton and Studytown could support the models at all three grades. In addition, Cognitive Camp could be used at grade five, Unique Domain at grade eight, and Better Springs at grade eleven. It should be emphasized that analysis of the results at the project level was never envisioned as being able to produce any sort of nationally generalizable results. In light of the aggregation discussion, such a goal would be inappropriate. Rather, the objective was to see if, by applying the models at the local level, the models would be able to account for a substantial portion of the outcome variance, and, thus, at least be able to describe how career education operates at the project level. If there had been sufficient subjects, it probably would have been also appropriate to further divide the projects into racial and sexual subgroups to assess the effect of grouping and group context on the outcome-process and outcome-group membership relations. This was not possible. In addition, an absence of cases also prevented the inclusion of plans and expectations in these analyses. Since the data were being analyzed at the project level, it was possible to include the achievement test data since the same instrument was used within each project. It was still necessary to exclude some of the learner outcome, achievement, and SOS measures from the analyses, however, due again to the limitations forced by small numbers of students. The key activity variables for excluded measures were retained in the process model tables.

In this section, the results are presented by grade level, and, within each grade level, the results are presented project by project. For each project, a table of means and standard deviations and tables for each of the models are presented. The intent is to examine the data from the perspective of the similarities and differences in the results produced by the models as they are applied across projects. The reader is certainly invited to subject the project data to more intense scrutiny, although this has already been done to a large extent in the individual project reports.

Grade Five

The Prepton data are presented in Table 6.21 to 6.24. The group membership model continued to provide little in the way of explanatory power although, given the simularity of the target and nontarget means, this was not surprising. What was surprising, however, was the strong positive relationship

Table 6.21
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Prepton

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	16.9 (132)	5.8	16.8 (171)	5.6	19.1	4.7	17.5 (157)	6.7
Work Values	33.9 (135)	4.1	33.7 (172)	4.4	34.3 (129)	4.5	35.1 (166)	4.4
Interest in Career Preparation								
Attitudes Toward Work	26.5 (135)	5.1	26.4 (168)	5.6	28.3 (126)	5.4	27.8 (155)	5.5
Knowledge of Work Values	38.7 (132)	3.5	38.7 (166)	3.6	40.2 (84)	3.7	39.4 (140)	4.4
Decision Making								
Job Seeking/ Job Getting	48.2 (127)	5.0	48.4 (166)	5.9	48.8 (49)	5.9	47.5 (114)	5.6
Career Awareness	20.1 (134)	2.0	20.1 (169)	2.2	20.4 (130)	2.1	19.8 (162)	2.8
Economic Awareness	8.2 (132)	1.8	8.3 (172)	1.9	9.0 (124)	1.8	8.5 (159)	1.9
Academic Perceptions	49.1 (131)	10.2	50.1 (164)	9.1	52.3 (131)	10.1	51.9 (164)	10.1
Social/Personal Perceptions	48.3 (131)	10.9	49.1 (164)	9.7	45.7 (131)	10.6	47.2 (164)	9.7
Reading Achievement								
Math Achievement								

Table 6.22

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 5: Prepton

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	5.440 (1,272)	.018	.019	.006
Work values	3.201 (1,291)	-.010	.011	.002
Interest in career preparation				
Attitudes towards work	1.092 (1,273)	.003	.004	.008
Knowledge of work values	2.140 (1,214)	.009	.010	.000
Decision making				
Job seeking/job getting	3.120 (1,156)	.015	.019	.017
Career awareness	5.130 (1,285)	.016	.018	.000
Economic awareness	4.432 (1,277)	.014	.016	.000
Academic perceptions	.873 (1,291)	.002	.003	.003
Social/personal perceptions	-.432 (1, 291)	.001	.002	.003
Reading achievement				
Math achievement				
Ohio, Part 1	14.721 (1,269)	.044	.051	.010
Ohio, Part 2	2.470 (1,269)	-.009	.009	.002
FECE	.605 (1,121)	.004	.005	.001
New Mexico One	.997 (1,291)	-.003	.003	.001
New Mexico Six (1-10)	.000 (1, 29)	.000	.000	.000
New Mexico Six (11-20)				
New Mexico Two, Seven, Eight				
Cognitive growth discriminant	5.845 (1,221)	.021	.025	.012
Affective growth discriminant	2.142 (1,269)	.007	.008	.003
Desire to Work	2.860 (1,286)	-.007	.010	.000

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Table 6 .23

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Grade 5: Prepton

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.030 (20, 201)	.080	.088	.060	16(.13),8(.11),1(.11),4(.10),7(.09)
Work values	1.870 (20, 214)	.126	.137	.076	17(.17),14(.15),7(.14),3(.09),8(.09)
Interest in career preparation					
Atittudes towards work	1.326 (20, 200)	.085	.103	.099	1(.11),20(-.11),10(-.11),13(-.11),17(.10)
Knowledge of work values	1.419 (20, 152)	.123	.135	.113	14(.16),8(.16),7(.15),1(.14),16(.11)
Decision making					
Job seeking/job getting	1.217 (20, 100)	.128	.161	.139	1(.20),3(.16),14(.16),17(.14),6(.12)
Career awareness	1.093 (20, 210)	.078	.085	.092	10(-.15),20(.10),17(.09),3(.09),5(.06)
Economic awareness	1.404 (20, 20[illegible])	.098	.109	.098	19(.18),7(.16),14(.15),16(.13),1(.12)
Academic perceptions	1.019 (20, 210)	.054	.082	.062	8(.134),12(.134),10(.124),14(.095,3(.086)
Social/personal perceptions	1.607 (20, 210)	.092	.118	.084	8(.211),17(.159),16(.157),11(.145),19(.139)
Reading achievement					
Math achievement					
Ohio, Part 1	0.840 (20,200)	.059	.069	.094	10(-.11),1(.11),3(.10),16(.09),7(-.07)
Ohio, Part 2	1.403 (20,199)	.112	.113	.090	20(-.24),13(-.11),7(-.10),19(-.09),17(.07)
PECE	2.311 (20, 72)	.283	.333	.126	1(.32),7(.28),16(.25),8(.24),17(.22)
New Mexico One	2.236 (20,214)	.138	.160	.066	17(.18),14(.15),7(.12),13(-.11),1(.10)
New Mexico Six (1-10)					1(-.35),19(.28),16(.26),7(.23),11(.23)
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.424 (20,160)	.103	.126	.134	1(.18),3(.12),4(-.11),6(.10),7(.10)
Affective growth discriminant	1.030 (20,198)	.077	.087	.071	1(.15),2-.11),15(-.10),4(-.10),17(.09)
Desire to Work	2.120 (20,212)	.140	.151	.089	7(.17),17(.18),14(.12),15(-.09),1(.09)

Table 6.24

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5: Prepton

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	**F(df)**	**Prop. Crit. Variance**	**F(df)**	**Prop. Crit. Variance**	**Prop. Crit. Variance**	**F(df)**	**Prop. Crit. Variance**
Occupational self-awareness	1.114 (20, 220)	.091	4.346 (1, 220)	.018	.002	1.242 (21, 220)	.106
Work values	1.783 (20, 233)	.132	.000 (1, 233)	.000	.005	1.754 (21, 233)	.137
Interest in career preparation							
Attitudes towards work	1.225 (20, 219)	.099	2.091 (1, 219)	.008	.005	1.309 (21, 219)	.112
Knowledge of work values	1.419 (20, 171)	.142	2.421 (1, 171)	.012	.007	1.404 (21, 171)	.147
Decision making							
Job seeking/job getting	1.137 (20,119)	.152	2.002 (1, 119)	.014	.003	1.204 (21, 119)	.175
Career awareness	1.107 (20, 229)	.086	6.727 (1, 229)	.026	.001	1.361 (21, 229)	.111
Economic awareness	1.498 (20, 221)	.118	5.935 (1, 221)	.023	.009	1.601 (21, 221)	.132
Academic perceptions	.987 (20,229)	.079	.745 (1,229)	.003	.001	.993 (21,229)	.083
Social/personal perceptions	1.621 (20,229)	.123	3.040 (1,229)	-.012	-.005	1.624 (21,229)	.130
Reading achievement							
Math achievement							
Ohio, Part 1	0.730 (20,219)	.058	14.600 (1,219)	.058	.011	1.516 (21,219)	.127
Ohio, Part 2	1.513 (20,218)	.113	.196 (1,218)	-.007	.000	1.592 (21,218)	.120
PECE	2.311 (20,91)	.336	.647 (1,91)	.005	-.003	2.209 (21,91)	.338
New Mexico One	2.201 (20,233)	.158	.000 (1,233)	-.000	.002	2.112 (21,233)	.160
New Mexico Six (1-10)							
New Mexico Six (11-20)							
New Mexico Two, Seven, Eight							
Cognitive growth discriminant	1.236 (20,179)	.118	4.894 (1,179)	.023	.008	1.496 (21,179)	.149
Affective growth discriminant	1.122 (20,217)	.092	4.926 (1,217)	.020	-.005	1.238 (21,217)	.107
Desire to Work	1.998 (20,231)	.147	.000 (1,231)	-.000	.004	1.947 (21,231)	.151

indicated between process and virtually all of the constructs. With the exception of "Attitudes Towards Work," where the results were mixed, the process model indicated that increased levels of activity participation should tend to produce higher performance on outcome measures. The joint effects model showed that process and treatment continued to be disjoint. Process provided the bulk of the model's explanatory power except for Ohio Test, Part 1, which remained considerably more sensitive to treatment effects even at the project level of aggregation.

The Studytown data are presented in Tables 6.25 to 6.28. The group membership model yielded somewhat more negative results than it did when applied overall or to the Prepton data. The proportion of variance accounted for continued to be low. Once again the Ohio Test, Part 1, was an exception, showing a strong positive relation with group membership. The process model yielded somewhat more negative results than for the Prepton data, but still more positive than for the overall results. The joint effects model continued to indicate that process and treatment were disjoint. A notable exception was again the Ohio Test, Part 1, which for these data, at least, seemed to be resistant to both process and the joint effects of process and treatment. The group membership model indicated that treatment was accounting for over ten percent of the criterion variance for the Ohio Test, Part 1; the joint effects model reduced this to less than three percent. Given the limited degrees of freedom,

Table 6.25
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Studytown

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X (N)	SD	X (N)	SD	X (N)	SD	X (N)	SD
Occupational Self-Awareness	15.8 (234)	7.0	14.7 (300)	6.2				
Work Values	33.8 (252)	4.1	32.6 (329)	4.4	33.7 (42)	5.1	34.7 (166)	4.2
Interest in Career Preparation								
Attitudes Toward Work	27.0 (233)	5.7	25.9 (299)	5.3				
Knowledge of Work Values	38.2 (210)	4.2	37.7 (289)	3.7	39.5 (34)	4.2	38.2 (13)	3.0
Decision Making								
Job Seeking/ Job Getting	46.9 (196)	5.0	46.9 (280)	4.4				
Career Awareness	19.7 (244)	2.3	19.7 (317)	2.3	20.9 (77)	1.8	19.6 (70)	2.7
Economic Awareness	7.9 (228)	1.7	7.8 (310)	1.6	8.6 (122)	1.7	8.5 (86)	1.9
Academic Perceptions	51.5 (47)	8.7	48.3 (151)	9.7	49.2 (47)	8.9	51.7 (151)	9.1
Social/Personal Perceptions	50.1 (47)	9.6	51.7 (151)	9.0	46.7 (47)	10.4	50.0 (151)	9.7
Reading Achievement	45.5 (263)	10.2	42.6 (402)	11.1	51.1 (263)	10.4	49.4 (402)	10.7
Math Achievement	30.5 (263)	8.5	32.6 (402)	9.9	48.6 (263)	10.7	47.3 (402)	11.0

Table 6.26

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences
Grade 5: Studytown

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness				
Work values	6.210 (1,207)	-.027	.030	.001
Interest in career preparation				
Attitudes towards work				
Knowledge of work values	1.218 (1, 29)	.031	.040	.004
Decision making				
Job seeking/job getting				
Career awareness	3.087 (1,147)	-.020	.021	.005
Economic awareness	.000 (1,187)	-.000	.000	.003
Academic perceptions	11.058 (1. 194)	-.039	.054	.001
Social/personal perceptions	2.716 (1, 194)	-.011	.014	.006
Reading achievement	.661 (1,661)	.001	.001	.018
Math achievement	5.288 (1, 661)	.007	.008	.004
Ohio, Part 1	13.303 (1,113)	.092	.104	.007
Ohio, Part 2	1.339 (1,105)	.012	.013	.002
PECE				
New Mexico One	4.435 (1,204)	-.019	.021	.011
New Mexico Six (1-10)				
New Mexico Six (11-20)				
New Mexico Two, Seven, Eight				
Cognitive growth discriminant				
Affective growth discriminant				
Desire to Work				

Table 6.27

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Grade 5: Studytown

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values	1.227 (20, 135)	.130	.141	.080	17(.27),16(.23),11(.16),8(.15),7(-.13)
Interest in career preparation					
Atittudes towards work					
Knowledge of work values					10(.29),19(.-28),2(-.28),11(.27),6(-.25)
Decision making					
Job seeking/job getting					
Career awareness	1.373 (20, 86)	.191	.201	.161	18(-.22),19(.19),15(.18),8(.18),20(.15)
Economic awareness	1.835 (20, 95)	.214	.238	.130	13(-.27),14(-.24),9(-.23),2(-.14),4(-.13)
Academic perceptions	1.181 (20, 127)	.094	.127	.140	16(.147),11(.147,10(-.144),7(-.136),17(.112)
Social/personal perceptions	1.207 (20, 127)	.116	.144	.076	11(.273),16(.217),17(.172),3(.157),6(.146)
Reading achievement	2.738 (20, 489)	.079	.094	.035	13(-.149),18(.141),4(-.123),8(-.105),12(-.101
Math achievement	2.201 (20, 489)	.076	.081	.023	18(.152),3(.127),4(-.112),6(.106),16(.086)
Ohio, Part 1	2.077 (20,59)	.290	.330	.178	3(.27),17(-.25),18(.23),3(.19),13(-.18)
Ohio, Part 2	.610 (20,48)	.141	.151	.239	8(-.16),11(-.15),4(.13),7(.12),17(.12)
PECE					10(.51),11(.45),18(.41),14(-.36),20(.34)
New Mexico One	1.140 (20,131)	.119	.128	.126	18(.17),17(.16),7(-.16),16(.12),12(-.11)
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					
Desire to Work					

Table 6.28

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5: Studytown

Constructs	Process (C) F(df)	Process (C) Prop. Crit. Variance	Group (A) F(df)	Group (A) Prop. Crit. Variance	Joint (B) Prop. Crit. Variance	Union (A+B+C) F(df)	Union (A+B+C) Prop. Crit. Variance
Occupational self-awareness							
Work values	1.247 (20, 154)	.137	2.156 (1, 154)	-.012	.003	1.313 (21, 154)	.152
Interest in career preparation							
Attitudes towards work							
Knowledge of work values							
Decision making							
Job seeking/job getting							
Career awareness	1.264 (20, 105)	.192	.417 (1, 405)	-.003	.009	1.283 (21, 105)	.204
Economic awareness	1.554 (20, 114)	.202	3.434 (1, 114)	.022	.037	1.913 (21, 114)	.261
Academic perceptions	1.005 (20,146)	.114	8.616 (1,146)	-.049	.013	1.482 (21,146)	.176
Social/personal perceptions	1.273 (20,146)	.146	3.481 (1,146)	-.020	-.002	1.368 (21,146)	.164
Reading achievement	2.617 (20,508)	.093	.671 (1,508)	.001	.002	2.556 (21,508)	.096
Math achievement	2.060 (20,508)	.074	2.943 (1,508)	.005	.007	2.270 (21,508)	.086
Ohio, Part 1	1.509 (20,78)	.249	3.307 (1,78)	.027	.081	2.061 (21,78)	.351
Ohio, Part 2	.671 (20,67)	.166	1.731 (1,67)	.021	-.014	.664 (21,67)	.173
PECE							
New Mexico One	1.163 (20,150)	.132	3.216 (1,150)	.018	-.004	1.225 (21,150)	.146
New Mexico Six (1-10)							
New Mexico Six (11-20)							
New Mexico Two, Seven, Eight							
Cognitive growth discriminant							
Affective growth discriminant							
Desire to Work							

this result should be interpreted with some caution, especially since the "Career Awareness" construct, with its large sample of Ohio items, did not show a similar effect. It illustrates nonetheless, the potential power of the joint effects model to more properly ascribe causation than can be done through a single component model.

The Cognitive Camp data are presented in Tables 6.29 to 6.32. The group membership model once again showed little explanatory power, although, as with the Studytown grade five results, the treatment effects tended to be negative. The process model yielded a mixed set of process-outcome relationships which, while tending to be negative, were still not as uniformly negative as the overall results. The joint effects model revealed that virtually the entire explanatory power of the model was coming from the process component. It was interesting to note that in Cognitive Camp, the Ohio Test, Part 1, was moderately sensitive to process and not sensitive to treatment at all.

Grade Eight

The Unique Domain data are presented in Tables 6.33 to 6.36. The group membership model revealed substantially larger treatment effects than had been observed for the overall results. "Work Values," "Decision Making," "Job Seeking/Job Getting," and "Career Awareness" all evidenced positive treatment effects. It is interesting to note, though, that of the total test measures with items comprising these constructs, only the first half of the New Mexico 5006

Table 6.29
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Cognitive Camp

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD
upational Self-Awareness	14.5 (105)	7.5	15.0 (109)	6.3	14.7 (129)	6.8	16.2 (116)	6.3
k Values	32.0 (136)	4.9	32.6 (118)	4.0	33.0 (136)	4.5	32.8 (121)	4.6
erest in Career Preparation								
itudes Toward Work	24.8 (112)	5.1	25.6 (113)	4.5	26.7 (130)	5.1	26.0 (114)	4.9
wledge of Work Values	36.6 (117)	3.5	37.4 (111)	3.8	37.0 (120)	3.7	37.9 (117)	3.9
ision Making								
Seeking/ Job Getting	46.1 (112)	4.4	46.6 (109)	4.7	46.8 (114)	4.6	47.9 (112)	4.8
eer Awareness	19.3 (131)	2.5	19.5 (114)	2.2	20.0 (129)	2.0	20.1 (118)	2.0
nomic Awareness	8.2 (130)	1.8	8.1 (118)	1.7	8.3 (132)	1.8	8.5 (120)	1.9
demic Perceptions	48.1 (120)	10.5	49.3 (48)	8.9	52.3 (120)	9.7	49.6 (48)	10.9
ial/Personal Perceptions	53.1 (120)	9.7	45.1 (48)	11.0	49.0 (120)	9.8	44.5 (48)	12.5
ding Achievement								
h Achievement								

Table 6.30

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 5: Cognitive Camp

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	4.6000 (1,200)	-.017	.023	.006
Work values	0.500 (1,250)	.002	.002	.008
Interest in career preparation				
Attitudes towards work	2.968 (1,212)	.011	.014	.005
Knowledge of work values	0.828 (1,207)	-.003	.004	.018
Decision making				
Job seeking/job getting	3.780 (1,189)	-.012	.019	.003
Career awareness	0.000 (1,232)	-.000	.000	.001
Economic awareness	0.956 (1,239)	-.003	.004	.002
Academic perceptions	6.724 (1,164)	+.024	.039	.004
Social/personal perceptions	.164 (1, 164)	+.001	.001	.0
Reading achievement				
Math achievement				
Ohio, Part 1	.000 (1,217)	-.000	.000	.020
Ohio, Part 2	2.665 (1,191)	.012	.016	.015
PECE	.174 (1,174)	.001	.001	.014
New Mexico One	.324 (1,250)	.001	.001	.004
New Mexico Six (1-10)				
New Mexico Six (11-20)				
New Mexico Two, Seven, Eight				
Cognitive growth discriminant	.894 (1,209)	-.003	.004	.041
Affective growth discriminant	.000 (1,198)	.000	.000	.001
Desire to Work	27.129 (1,237)	-.003	.003	.008

Table 6.31

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities
Grade 5: Cognitive Camp

tructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
pational self-awareness	1.166 (20, 117)	.126	.148	.092	18(.18),3(.18),2(-.16),6(.15),16(.14)
values	1.642 (20, 153)	.141	.159	.090	18(.21),7(-.16),17(.15),3(.12),12(.10)
rest in career preparation					
tudes towards work	.958 (20, 126)	.097	.118	.087	18(.17),3(.16),19(-.11),16(.11),9(-.10)
ledge of work values	1.838 (20, 124)	.150	.201	.092	16(.24),2(-.21),18(.20),15(-.19),9(-.14)
sion making					
seeking/job getting	1.617 (20, 110)	.127	.185	.128	2(-/22),3(.18),13(-.14),7(-.13),9(-.12)
er awareness	1.591 (20, 142)	.136	.159	.112	2(-.24),12(-.18),10(-.14),16(.14),15(-.14)
omic awareness	1.653 (20, 147)	.128	.154	.135	16(.19),15(-.18),3(.13),7(-.13),2(-.12)
emic perceptions	1.208 (20, 86)	.103	.183	.093	10(.197),13(-.177),16(-.141),7(.136),20(.129)
al/personal perceptions	1.513 (20, 86)	.207	.265	.139	19(.346).8(.229),18(.179),1(.165),11(.162)
ing achievement					
achievement					
, Part 1	.905 (20,134)	.079	.107	.079	16(.16),16(.14),18(.11),6(.11),3(.09)
, Part 2	.993 (20,111)	.118	.139	.072	13(-.20),19(-.18),4(-.17),14(-.15),2(.10)
	1.851 (20,99)	.162	.217	.151	16(.27),3(.14),17(.13),8(-.13),18(.12)
Mexico One	1.017 (20,153)	.090	.105	.089	3(.19),18(.19),17(.16),12(.11),5(.09)
Mexico Six (1-10)					
Mexico Six (11-20)					
Mexico Two, Seven, Eight					
itive growth discriminant	1.038 (20,125)	.095	.127	.080	8(-.17),16(.11),18(.11),2(-.11),7(-.10)
ctive growth discriminant	1.728 (20,116)	.140	.179	.174	13(-.18),3(.17),9(-.15),4(.14),18(.14)
ire to Work	1.332 (20,144)	.134	.141	.091	18(.25),3(.22),12(.17),17(.16),19(.13)

Table 6.32

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5: Cognitive Camp

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	**F(df)**	**Prop. Crit. Variance**	**F(df)**	**Prop. Crit. Variance**	**Prop. Crit. Variance**	**F(df)**	**Prop. Crit. Variance**
Occupational self-awareness	1.132 (20, 136)	.140	1.712 (1, 136)	.011	.008	1.223 (21, 136)	.159
Work values	1.694 (20, 172)	.164	1.393 (1, 172)	.007	.005	1.614 (21, 172)	.166
Interest in career preparation							
Attitudes towards work	1.028 (20, 145)	.123	2.647 (1, 145)	.016	.005	.979 (21, 145)	.134
Knowledge of work values	1.737 (20, 143)	.194	.240 (1, 143)	.001	.014	1.723 (21, 143)	.209
Decision making							
Job seeking/job getting	1.364 (20, 129)	.172	.462 (1, 129)	.003	.013	1.419 (21, 129)	.188
Career awareness	1.523 (20, 161)	.159	.000 (1, 161)	.000	.000	1.450 (21, 161)	.159
Economic awareness	1.486 (20, 166)	.151	.000 (1. 166)	.000	.003	1.437 (21, 166)	.154
Academic perceptions	1.060 (20,105)	.164	.691 (1,105)	.005	.020	1.162 (21,105)	.189
Social/personal perceptions	1.801 (20,105)	.263	.000 (1,105)	.000	.002	1.300 (21,105)	.265
Reading achievement							
Math achievement							
Ohio, Part 1	.793 (20,153)	.094	.000 (1,153)	-.000	.000	.755 (21,153)	.094
Ohio, Part 2	1.209 (20,130)	.156	3.091 (1,130)	.020	-.017	1.169 (21,130)	.159
PECE	1.609 (20,118)	.213	.202 (1,118)	-.001	.006	1.571 (21,118)	.218
New Mexico One	1.002 (20,172)	.104	.000 (1,172)	-.000	.001	.965 (21,172)	.105
New Mexico Six (1-10)							
New Mexico Six (11-20)							
New Mexico Two, Seven, Eight							
Cognitive growth discriminant	1.029 (20,144)	.125	.000 (1,144)	.000	.002	1.001 (21,144)	.127
Affective growth discriminant	1.653 (20,135)	.196	3.219 (1,135)	.019	.002	1.534 (21,135)	.198
Desire to Work	1.283 (20,163)	.135	.515 (1,163)	-.004	.005		

Table 6.33
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 8 Unique Domain

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
cupational Self-Awareness	17.8 (104)	8.0	16.5 (63)	7.6	18.3 (101)	8.8	15.7 (60)	8.4
rk Values	62.9 (125)	6.0	62.3 (47)	6.5	63.5 (88)	7.0	59.6 (46)	6.4
terest in Career Preparation	11.4 (125)	3.7	11.4 (47)	3.7	11.4 (88)	3.4	11.7 (46)	3.2
titudes Toward Work	11.3 (108)	2.6	11.1 (66)	2.0	11.2 (85)	2.3	11.5 (63)	1.7
owledge of Work Values	67.9 (100)	6.2	67.9 (63)	5.2	66.7 (60)	7.0	64.4 (25)	5.8
cision Making	12.0 (124)	1.8	11.8 (47)	1.6	12.2	2.0	10.8 (44)	2.0
b Seeking/ Job Getting	28.7 (103)	2.5	28.4 (44)	2.4	29.5 (77)	2.9	29.1 (44)	2.8
reer Awareness	28.5 (102)	4.6	30.8 (63)	3.4	30.3 (106)	4.9	31.0 (59)	3.5
onomic Awareness	7.3 (118)	1.5	6.7 (66)	1.3	6.9 (102)	1.4	6.5 (64)	1.3
ademic Perceptions	49.9 (107)	8.7	45.5 (41)	9.8	42.7 (107)	7.6	45.2 (41)	9.8
cial/Personal Perceptions	50.9 (107)	8.6	50.5 (41)	10.7	52.4 (107)	7.0	52.8 (41)	10.0
ading Achievement	42.6 (132)	8.3	44.8 (105)	7.7	45.3 (132)	6.0	47.0 (105)	4.9
th Achievement	43.8 (132)	9.0	45.1 (105)	8.0	47.8 (132)	3.8	48.2 (105)	4.0

Table 6.34

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences
Grade 8: Unique Domain

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	2.812 (1,148)	.014	.019	.008
Work values	10.140 (1,130)	.072	.072	.010
Interest in career preparation	.260 (1,130)	-.002	.002	.000
Attitudes towards work	1.120 (1,140)	-.008	.008	.001
Knowledge of work values	5.070 (1,78)	.051	.060	.008
Decision making	15.252 (1,124)	.104	.104	.048
Job seeking/job getting	4.360 (1,109)	.038	.038	.000
Career awareness	8.968 (1,152)	.052	.055	.011
Economic awareness	1.793 (1,163)	.011	.011	.030
Academic perceptions	1.008 (1, 144)	-.005	.007	.039
Social/personal perceptions	.144 (1, 144)	-.001	.001	.071
Reading achievement	2.563 (1, 233)	-.009	.010	.001
Math achievement	.233 (1, 233)	-.001	.001	.000
Ohio, Part 1	0.000 (1,188)	-.000	.000	.048
Ohio, Part 2	0.773 (1,188)	-.002	.004	.061
PECE	5.250 (1,70)	.059	.069	.008
New Mexico One	5.134 (1,151)	.032	.033	.001
New Mexico Six (1-10)	12.772 (1,124)	.088	.090	.040
New Mexico Six (11-20)	.000 (1,130)	-.000	.000	.000
New Mexico Two, Seven, Eight				
Cognitive growth discriminant	.294 (1, 93)	.003	.003	.046
Affective growth discriminant	13.635 (1,188)	.052	.063	.051
Desire to Work	12.636 (1,145)	.080	.080	.001

Table 6.35

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities
Grade 8: Unique Domain

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.521 (27, 38)	.282	.348	.268	25(.23),10(.22),19(-.19),13(.19),5(-.16)
Work values	.809 (27, 35)	.274	.274	.286	20(.32),16(-.21),23(.13),25(.12),24(-.10)
Interest in career preparation	.781 (27, 35)	.229	.230	.388	3(-.15),4(.14),5(-.14),13(-.12),2(-.10)
Atittudes towards work	1.387 (27, 30)	.302	.304	.448	12(-.29),11(-.24),20(.25),13(.17),23(-.12)
Knowledge of work values					18(.31),7(-.22),3(-.21),19(.17),6(.17)
Decision making	.853 (27, 29)	.331	.334	.244	18(.30),27(.25),13(.25),8(.24),3(.23)
Job seeking/job getting	.897 (27, 24)	.315	.315	.373	2(.27),17(.25),8(.23),16(.21),1(.20)
Career awareness	1.086 (27, 35)	.310	.335	.245	3(-.33),23(-.25),21(-.19),19(-.13),20(-.13)
Economic awareness	1.524 (27, 43)	.335	.335	.314	17(-.21),1(-.20),24(-.18),20(.14),13(.12)
Academic perceptions	1.827 (27, 36)	.255	.451	.124	26(.310), 20(.298),11(.272),4(.245),16(-.167)
Social/personal perceptions	1.621 (27, 36)	.230	.350	.239	8(-.268),26(-.235),13(-.199),10(-.169),1(-.165)
Reading achievement	2.919 (27, 82)	.273	.328	.276	18(.320),11(.195),6(.169),20(-.169),10(-.156)
Math achievement	2.023 (27, 82)	.281	.293	.255	18(.305),20(-.252),15(-.252),11(.155),5(.128)
Ohio, Part 1	.987 (27,53)	.078	.170	.227	24(-.18),20(-.16),9(-.15),17(.11),25(.11)
Ohio, Part 2	2.414 (27,53)	.139	.290	.228	17(.30),26(-.25),24(-.19),15(-.19),14(-.15)
PECE					18(.36),4(-.26),22(-.23),19(.21),9(-.21)
New Mexico One	1.138 (27,35)	.301	.311	.325	20(.36),16(-.20),17(-.16),24(-.10),9(-.10)
New Mexico Six (1-10)	1.366 (27, 29)	.383	.393	.291	18(.28),27(.24),3(.19),7(.19),23(.17)
New Mexico Six (11-20)	0.863 (27, 35)	.251	.252	.370	4(.18),3(-.13),21(.12),5(-.12),1(-.12)
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.462 (27, 13)	.337	.341	.539	13(.18),11(-.17),18(.15),22(-.15),7(.13)
Affective growth discriminant	1.845 (27,53)	.265	.322	.277	24(-.23),15(-.22),10(-.22),20(-.21),9(-.18)
Desire to Work	1.546 (27,34)	.360	.361	.342	20(.35),16(-.23),4(-.17),12(-.17),24(-.16)

Table 6.36

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 8: Unique Domain

Constructs	Process (C) F(df)	Prop. Crit. Variance	Group (A) F(df)	Prop. Crit. Variance	Joint (B) Prop. Crit. Variance	Union (A+B+C) F(df)	Prop. Crit. Variance
Occupational self-awareness	1.263 (27, 64)	.348	0.000 (1. 64)	.000	.000	1.218 (28, 64)	.348
Work values	.794 (27, 61)	.235	5.106 (1. 61)	.056	.039	1.075 (28, 61)	.330
Interest in career preparation	.666 (27, 61)	.227	.080 (1, 61)	.001	.002	.677 (28, 61)	.230
Attitudes towards work	.899 (27, 56)	.301	0.0 (1. 56)	.000	.003	.875 (28, 56)	.304
Knowledge of work values	1.710 (27, 15)	.734	.069 (1, 15)	.001	.027	1.710 (28, 15)	.762
Decision making	1.045 (27, 55)	.297	8.226 (1, 55)	.087	.036	1.424 (28, 55)	.420
Job seeking/job getting	.675 (27, 50)	.240	2.052 (1, 50)	.027	.075	.928 (28. 50)	.342
Career awareness	1.13 (27, 61)	.326	0.000 (1. 61)	.000	.009	1.098 (28, 61)	.335
Economic awareness							
Academic perceptions	1.886 (27,62)	.450	.201 (1,62)	.002	.001	1.834 (28,62)	.453
Social/personal perceptions	1.237 (27,62)	.350	.145 (1,62)	-.002	.003	1.198 (28,62)	.351
Reading achievement	1.950 (27,108)	.328	.000 (1,108)	-.000	.000	1.880 (28,108)	.328
Math achievement	1.703 (27,108)	.290	3.969 (1,108)	.025	.003	1.802 (28.108)	.318
Ohio, Part 1	.561 (27,79)	.159	.207 (1,79)	-.002	.011	.607 (28,79)	.172
Ohio, Part 2	1.149 (27,79)	.275	1.176 (1,79)	-.010	.015	1.254 (28,79)	.300
PECE	1.958 (27,12	.778	.073 (1,12)	.001	.044	1.997 (28,12)	.823
New Mexico One	.917 (27,61)	.264	3.577 (1,61)	.038	.047	1.167 (28,61)	.349
New Mexico Six (1-10)	1.337 (27,55)	.351	7.495 (1,55)	.073	.042	1.712 (28,55)	.466
New Mexico Six (11-20)	.764 (27,61)	.253	.164 (1,61)	-.002	.003	.740 (28,61)	.254
New Mexico Two, Seven, Eight							
Cognitive growth discriminant	.762 (27,39)	.342	.548 (1,39)	.009	.000	.752 (28, 39)	.351
Affective growth discriminant	1.283 (27,79)	.285	3.390 (1,79)	-.028	.037	1.516 (28,79)	.350
Desire to Work	1.093 (27,60)	.297	3.389 (1,60)	.034	.065	1.402 (28,60)	.396

reflected a similar treatment effect. The process model yielded generally mixed results, although a strong positive relationship between process and outcome was evidenced from the cognitive constructs "Decision Making" and "Job Seeking/Job Getting," unlike the case for the overall analyses. The joint effects model showed considerable process effect and little treatment or joint effects.

The Prepton data are presented in Tables 6.37 to 6.40. In both the group membership and process models, the interaction effects tended to be larger than the main effects. Consequently, any further examination or interpretation of the main effects would be inappropriate. It might be noted, however, that the process-outcome relations tended to be generally negative.

The Studytown data are presented in Tables 6.41 to 6.44. As with the Prepton data, the interaction effects for both the group membership and process models tended to vary largely in relation to the size of the main effects. The process-outcome constructs were mixed, tending to be positive for the learner outcome constructs and uniformly negative for the achievement measures.

Grade Eleven

The Prepton data are presented in Tables 6.45 to 6.48. The group membership model revealed nothing. The process model indicated substantial process effects although many of these were confounded by equally substantial interaction effects. The process-outcome relationships, while mixed,

Table: 6.37
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 8 : Prepton

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarge	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	S
Occupational Self-Awareness	22.0 (344)	8.0	22.0 (123)	7.3	21.2 (297)	9.2	20.6 (100)	8
Work Values	64.3 (380)	7.8	64.5 (134)	7.4	64.6 (316)	7.4	62.5 (119)	7
Interest in Career Preparation	10.6 (380)	3.6	11.6 (134)	3.5	10.8 (325)	3.7	11.8 (119)	3
Attitudes Toward Work	12.4 (358	2.3	11.7 (126)	2.4	12.5 (306)	2.5	12.2 (109)	2
Knowledge of Work Values	71.1 (333)	8.6	70.4 (114)	7.7	66.4 (93)	9.4	69.3 (86)	7
Decision Making	12.7 (376)	2.2	12.2 (129)	2.1	13.1 (318)	2.3	11.9 (116)	5
Job Seeking/ Job Getting	30.5 (329)	3.3	29.6 (118)	3.3	31.4 (257)	3.8	30.3 (99)	3
Career Awareness	31.9 (353)	4.8	32.0 (122)	4.8	32.3 (317)	5.1	32.4 (108)	5
Economic Awareness	7.1 (361)	1.4	7.2 (127)	1.4	7.1 (320)	1.5	6.9 (109)	1
Academic Perceptions	48.7 (193)	10.6	48.1 (113)	9.7	47.6 (193)	9.0	49.4 (113)	10
Social/Personal Perceptions	52.0 (193)	10.3	47.9 (113)	11.2	50.5 (193)	11.0	48.1 (113)	9
Reading Achievement								
Math Achievement								

Table 6.38

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 8: Prepton

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	.000 (1,360)	-.000	.000	.003
Work values	10.525 (1,421)	.016	.024	.003
Interest in career preparation	4.380 (1,438)	-.008	.010	.001
Attitudes towards work	.000 (1,379)	.000	.000	.012
Knowledge of work values	2.041 (1,157)	-.007	.012	.000
Decision making	22.260 (1,420)	.034	.050	.000
Job seeking/job getting	4.575 (1,305)	.011	.014	.017
Career awareness	.000 (1,391)	.000	.000	.002
Economic awareness	2.025 (1,405)	.004	.005	.009
Academic perceptions	.604 (1, 302)	+.001	.002	.004
Social/personal perceptions	.000 (1, 302)	.000	.000	.015
Reading achievement				
Math achievement				
Ohio, Part 1	0.000 (1,525)	-.000	.000	.005
Ohio, Part 2	0.000 (1,525)	-.000	.000	.001
PECE	.000 (1,137)	-.000	.000	.011
New Mexico One	7.565 (1,445)	.011	.016	.002
New Mexico Six (1-10)	12.834 (1,414)	.020	.030	.001
New Mexico Six (11-20)	3.024 (1,432)	-.006	.007	.001
New Mexico Two, Seven, Eight				
Cognitive growth discriminant	.000 (1,276)	.000	.000	.000
Affective growth discriminant	1.624 (1,525)	-.003	.003	.000
Desire to Work	12.240 (1,408)	.023	.191	.011

Table 6.39

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Grade 8: Prepton

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.746 (27, 176)	.150	.194	.062	6(.15),20(-.14),19(.12),16(.12),26(-.12)
Work values	1.768 (27, 202)	.130	.169	.087	19(.20),26(-.16),25(-.14),1(-.13),17(.12)
Interest in career preparation	1.470 (27, 208)	.125	.148	.066	27(.24),21(.19),20(.19),22(.18),9(.17)
Atittudes towards work	1.286 (27, 184)	.103	.144	.067	1(-.13),25(-.12),23(-.10),10(.10),13(-.10)
Knowledge of work values	.658 (27, 34)	.185	.254	.189	20(-.27),2(-.23),7(-.15),13(-.15),1(-.15)
Decision making	1.594 (27, 198)	.105	.153	.097	13(-.23),12(-.21),21(-.20),2(-.20),4(-.18)
Job seeking/job getting	1.123 (27, 145)	.111	.151	.093	6(-.16),5(-.15),22(-.14),9(-.12),3(-.10)
Career awareness	.999 (27, 194)	.111	.113	.074	21(-.17),22(-.15),20(-.14),19(-.14),25(-.14)
Economic awareness	1.193 (27, 204)	.096	.121	.090	15(-.19),20(-.18),13(-.17),26(-.17),2(-.17)
Academic perceptions	1.105 (27, 128)	.089	.156	.100	23(-.250),22(-.210),3(-.201),8(-.180),10(-.177)
Social/personal perceptions	2.071 (27, 128)	.146	.268	.065	2(-.230),18(.157),16(.128),4(-.126),17(.126)
Reading achievement					
Math achievement					
Ohio, Part 1	1.725 (27,236)	.133	.138	.163	15(-.23),26(-.21),7(-.21),13(-.20),9(-.19)
Ohio, Part 2	1.751 (27,236)	.133	.139	.161	7(-.21),6(-.20),13(-.18),15(-.17),3(-.15)
PECE	0.491 (27, 27)	.155	.208	.275	10(-.16),21(-.16),20(-.16),25(-.16),2(-.15)
New Mexico One	2.242 (27, 217)	.145	.193	.088	19(.21),26(-.16),1(-.16),20(-.16),25(-.15)
New Mexico Six (1-10)	1.6[illegible] (27, 198)	.108	.161	.075	13(-.26),2(-.19),12(-.18),4(-.18),21(-.18)
New Mexico Six (11-20)	1.526 (27, 207)	.127	.150	.080	27(.27),21(.20),20(.20),22(.19),23(.17)
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.752 (27, 131)	.129	.232	.070	4(-.24),26(-.22),10(-.18),3(-.16),9(-.15)
Affective growth discriminant	1.276 (27,236)	.106	.110	.134	9(-.21),7(-.20),25(-.17),13(-.16),2(-.15)
Desire to Work	1.370 (27,200)	.110	.130	.43	19(.21),18(.13),25(-.11),17(.11),16(.09)

Table 6.40

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 8: Prepton

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness	1.811 (27, 202)	.194	.652 (1, 202)-	.003	.000	1.768 (28, 202)	.197
Work values	1.785 (27, 228)	.169	1.824 (1, 228)	.007	.000	.065 (28, 228)	.176
Interest in career preparation	1.509 (27, 234)	.147	2.958 (1, 234)-	.011	.000	1.573 (28, 234)	.158
Attitudes towards work	1.294 (27, 210)	.142	.000 (1, 210)	.000	.002	1.260 (28, 210)	.144
Knowledge of work values	.982 (27, 60)	.293	7.593 (1, 60)-	.084	.039	1.094 (28, 60)	.338
Decision making	1.492 (27, 224)	.149	5.136 (1, 224)	.019	.004	1.665 (28, 224)	.172
Job seeking/job getting	1.154 (27, 171)	.154	1.103 (1, 171)	.005	.003	1.133 (28, 171)	.156
Career awareness	1.028 (27, 220)	.120	.000 (1, 220)	.000	.007	1.000 (28, 220)	.113
Economic awareness	(27, 230)	.121	.000 (1, 230)	.000	.000	(28, 230)	.121
Academic perceptions	1.041 (27,154)	.154	0.000 (1,154)	.000	.002	1.016 (28,154)	.156
Social/personal perceptions	2.098 (27,154)	.268	.776 (1,154)	-.004	.008	2.050 (28,154)	.272
Reading achievement							
Math achievement							
Ohio, Part 1	1.650 (27,262)	.142	10.454 (1,262)	.033	-.004	1.925 (28,262)	.171
Ohio, Part 2	1.779 (27,262)	.145	23.158 (1,262)	.070	-.006	2.560 (28,262)	.209
PECE	.617 (27,53)	.236	2.934 (1,53)	-.042	.055	.629 (28,53)	.249
New Mexico One	2.153 (27,243)	.193	.401 (1,243)	.001	.000	2.091 (28,254)	.194
New Mexico Six (1-10)	1.588 (27,224)	.161	.000 (1,224)	.000	.000	1.532 (1,224)	.161
New Mexico Six (11-20)	1.511 (27,233)	.148	1.305 (1,233)	-.005	.012	1.527 (28,233)	.155
New Mexico Two, Seven, Eight							
Cognitive growth discriminant	1.819 (27, 157	.237	1.860 (1,157)	-.009	.013	1.780 (28,150)	.241
Affective growth discriminant	1.240 (27,262)	.111	7.200 (1,262)	.024	-.001	1.442 (28,262)	.134
Desire to Work	1.291 (27,226)	.132	3.902 (1,226)	.015	-.002	1.367 (28,226)	.145

Table 6.41
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Studytown

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarge	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	S
Occupational Self-Awareness	22.6 (212)	7.1	22.4 (188)	7.0	22.3 (46)	8.0	24.0 (34)	7.
Work Values	65.7 (251)	6.6	63.4 (229)	7.2	66.0 (80)	6.6	64.4 (76)	5.
Interest in Career Preparation	10.5 (251)	3.6	11.6 (229)	3.5	10.2 (80)	4.4	11.1 (76)	3.
Attitudes Toward Work	12.3 (238)	2.3	11.9 (212)	2.4				
Knowledge of Work Values	72.8 (219)	7.0	72.4 (186)	6.8				
Decision Making	13.4 (242)	1.8	12.4 (212)	2.2	14.1 (76)	1.5	13.2 (72)	2.
Job Seeking/ Job Getting	30.6 (222)	3.0	29.9 (192)	2.8				
Career Awareness	32.2 (222)	5.1	32.9 (197)	4.2	33.6 (56)	4.2	34.9 (58)	4.
Economic Awareness	7.0 (235)	1.4	7.3 (217)	1.4	7.3 (71)	1.5	7.0 (148)	1.
Academic Perceptions	43.8 (4)	7.7			44.2 (4)	13.6		
Social/Personal Perceptions	55.4 (4)	3.9			56.4 (4)	3.1		
Reading Achievement	41.4 (382)	11.5	40.7 (231)	10.6	48.2 (382)	11.3	45.4 (231)	12.
Math Achievement	35.4 (382)	11.4	31.6 (231)	9.1	45.7 (382)	12.8	44.2 (231)	12.

Table 6.42

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 8: Studytown

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	0.448 (1,64)	-.006	.007	.033
Work values	0.760 (1,152)	.005	.005	.032
Interest in career preparation	0.152 (1,152)	-.001	.001	.062
Attitudes towards work				
Knowledge of work values				
Decision making	4.356 (1,132)	.030	.032	.009
Job seeking/job getting				
Career awareness	0.570 (1, 95)	.005	.006	.051
Economic awareness	3.392 (1,106)	.025	.029	.063
Academic perceptions				
Social/personal perceptions				
Reading achievement	7.790 (1,609)	.011	.013	.001
Math achievement	0.000 (1,609)	-.000	.000	.000
Ohio, Part 1	2.900 (1,478)	-.006	.006	.005
Ohio, Part 2	0.000 (1,478)	.000	.000	.002
PECE	.000 (1, 25)	-.000	.000	.059
New Mexico One	0.170 (1,170)	.001	.001	.038
New Mexico Six (1-10)	2.340 (1,130)	.017	.018	.009
New Mexico Six (11-20)	0.152 (1,152)	-.001	.001	.061
New Mexico Two, Seven, Eight				
Cognitive growth discriminant				
Affective growth discriminant	0.000 (1,478)	.000	.000	.001
Desire to Work				

Table 6.43

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities
Grade 11: Studytown

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					8(-.34),24(.23),9(-.22),1(-.20),11(.19)
Work values	1.808 (27, 63)	.296	.320	.247	1(.26),27(.23),8(.20),13(.20),23(.19)
Interest in career preparation	2.051 (27, 63)	.320	.360	.204	8(.38),27(.37),12(.32),18(.30),3(.29)
Atittudes towards work					
Knowledge of work values					
Decision making	.877 (27,48)	.224	.242	.246	12(-.22),7(-.19),22(-.14),6(-.12),3(-.12)
Job seeking/job getting					
Career awareness	(27, 18)	.349	.421	.344	23(.22),20(.20),8(-.19),17(-.18),3(.14)
Economic awareness					2(-.31),5(.23),4(-.23),26(.21),18(-.20)
Academic perceptions					
Social/personal perceptions					
Reading achievement	1.458 (27,315)	.092	.101	.087	25(-.18),9(-.17),23(-.13),24(-.12),15(-.11)
Math achievement	1.832 (27,315)	.121	.128	.053	25(-.17),7(-.13),24(-.11),2(-.11),23(-.10)
Ohio, Part 1	1.294 (27,249)	.112	.112	.090	3(.13),5(-.10),8(-.09),18(-.09),9(-.08)
Ohio, Part 2	1.031 (27,249)	.090	.090	.105	5(-.13),12(-.11),9(-.10),8(-.10),4(-.10)
PECE					5(.41),16(.39),3 (.37),21(.36),9(.32)
New Mexico One	1.496 (27, 74)	.254	.274	.208	27(.23),1(.17),19(.17),11(.16),23(.14)
New Mexico Six (1-10)	0.750 (27, 47)	.194	.213	.267	12(-.19),7(-.17),22(-.15),6(-.15),1(-.14)
New Mexico Six (11-20)	2.142 (27, 63)	.326	.373	.192	8(.40),27(.36),18(.31),12(.31),3(.29)
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant	1.180 (27,249)	.102	.104	.084	3(-.11),12(.10),18(.10),11(.09),24(.08)
Desire to Work					

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Table 6.44

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 11: Studytown

Constructs	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness							
Work values	1.708 (27, 89)	.337	3.684 (1, 89)	.027	.017	1.689 (28, 89)	.347
Interest in career preparation	1.894 (27, 89)	.364	.950 (1, 89)	.007	.004	1.844 (28, 89)	.367
Attitudes towards work							
Knowledge of work values							
Decision making	.994 (27, 74)	.258	4.963 (1, 74)	.048	.016	1.080 (28, 74)	.290
Job seeking/job getting							
Career awareness	1.193 (27, 44)	.423	.092 (1, 44)	.001	.001	1.151 (28, 44)	.423
Economic awareness							
Academic perceptions	1.466 (27,341)	.103	4.631 (1,341)	.012	-.002	1.549 (28,341)	.113
Social/personal perceptions	1.877 (27,341)	.129	1.246 (1,341)	.003	-.001	1.839 (28,341)	.131
Reading achievement							
Math achievement							
Ohio, Part 1	1.298 (27,275)	.113	.310 (1,275)	-.001	-.001	1.251 (28,275)	.113
Ohio, Part 2	1.047 (27,275)	.092	4.609 (1,275)	.015	-.002	1.152 (28,275)	.105
PECE							1.000
New Mexico One	1.436 (27,100)	.279	.749 (1,100)	.005	-.005	1.385 (28,100)	
New Mexico Six (1-10)	.829 (27,73)	.226	4.888 (1,73)	.049	-.013	.927 (28,73)	.262
New Mexico Six (11-20)	1.974 (27,89)	.374	.326 (1,89)	-.002	.003	1.909 (28,89)	.375
New Mexico Two, Seven, Eight							
Cognitive growth discriminant							
Affective growth discriminant	1.102 (27,275)	.092	16.196 (1,275)	.050	.012	1.782 (28,275)	.154
Desire to Work							

Table 6.45
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 11 : Prepton

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	3.9 (366)	5.6	4.9 (29)	3.9	6.0 (325)	5.4	7.5 (27)	3.4
Work Values	67.2 (403)	5.7	68.3 (32)	6.5	65.8 (400)	6.0	68.2 (32)	6.1
Interest in Career Preparation	11.5 (403)	4	11.31 (32)	4.0	12.3 (400)	3.4	12.0 (32)	3.6
Attitudes Toward Work	7.8 (403)	1.6	8.0 (32)	1.8	7.9 (400)	1.4	7.8 (32)	1.5
Knowledge of Work Values	84.7 (364)	7.1	85.8 (29)	4.5	81.7 (67)	8.7	84.6 (7)	4.0
Decision Making	108.3 (339)	10.3	110.4 (19)	5.7	108.9 (292)	10.6	110.0 (28)	5.8
Job Seeking/ Job Getting	25.8 (363)	4.0	24.4 (26)	2.8	26.8 (337)	3.7	24.5 (32)	3.1
Career Awareness	26.3 (394)	3.4	26.8 (30)	2.2	26.9 (391)	3.2	27.0 (31)	2.1
Economic Awareness	4.8 (386)	0.9	5.2 (30)	0.7	5.0 (361)	1.0	4.9 (28)	0.9
Academic Perceptions	48.3 (365)	9.1	51.1 (20)	9.9	47.6 (365)	9.3	47.1 (20)	10.1
Social/Personal Perceptions	52.8 (365)	8.3	50.6 (20)	10.8	52.2 (365)	9.0	52.5 (20)	10.9
Reading Achievement								
Math Achievement								

Table 6.46

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 11: Prepton

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	0.648 (1,324)	-.001	.002	.006
Work values	3.852 (1,428)	-.006	.008	.001
Interest in career preparation	0.428 (1,428)	.001	.001	.000
Attitudes towards work	1.284 (1,428)	.002	.002	.002
Knowledge of work values	0.682 (1,62)	-.003	.011	.004
Decision making	.000 (1,272)	-.000	.000	.000
Job seeking/job getting	5.312 (1,332)	.006	.016	.000
Career awareness	.000 (1,407)	.000	.000	.000
Economic awareness	1.860 (1,372)	.004	.005	.002
Academic perceptions	.762 (1, 381)	.002	.002	.006
Social/personal perceptions	.381 (1, 381)	-.001	.001	.018
Reading achievement				
Math achievement				
Ohio, Part 1	0.000 (1,372)	.000	.000	.000
Ohio, Part 2	0.310 (1,310)	-.001	.001	.004
PECE	.718 (1,20)	-.007	.035	.000
New Mexico One	1.712 (1,428)	-.003	.004	.000
New Mexico Six (1-10)	1.194 (1,398)	-.002	.003	.003
New Mexico Six (11-20)	.000 (1,428)	.000	.000	.000
New Mexico Two, Seven, Eight	.000 (1,277)	-.000	.000	.002
Cognitive growth discriminant	0.642 (1,321)	.001	.002	.000
Affective growth discriminant	.000 (1,390)	.000	.000	.000
Desire to Work	2.502 (1,417)	-.004	.006	.002

Table 6 .47

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities
Grade 11: Prepton

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	2.505 (27, 209)	.111	.199	.104	9(-.22),25(-.19),13(-.19),24(-.18),12(-.17)
Work values	2.386 (27, 277)	.120	.173	.057	16(.21),27(.20),19(.15),18(.13),3(.11)
Interest in career preparation	3.069 (27, 277)	.137	.209	.059	22(.25),27(.24),15(.24),6(.24),5(.20)
Atittudes towards work	4.051 (27, 277)	.160	.214	.041	16(.25),17(.21),9(-.18),23(.15),7(-.13)
Knowledge of work values		.148	.630	.087	13(-.33),9(-.30),21(.27),23(.20),19(.17)
Decision making	(27, 164)				16(.18),17(.16),6(.14),19(.13),5(.11)
Job seeking/job getting	1.799 (27, 214)	.059	.170	.029	25(-.14),13(-.13),6(.11),19(.10),20(.10)
Career awareness	2.543 (27, 265)	.093	.181	.061	17(.18),9(.17),1(-.16),7(-.14),2(-.13)
Economic awareness	.814 (27, 237)	.069	.078	.077	18(-.11),13(-.10),9(-.10),4(-.10),7(-.9)
Academic perceptions	.842 (27, 247)	.056	.072	.113	16(-.140),17(-.113),26(-.095),2(-.089),15(-085
Social/personal perceptions	1.372 (27, 247)	.092	.113	.110	27(.189),17(.173),16(.169),3(.166),8(.158)
Reading achievement					
Math achievement					
Ohio, Part 1	1.965 (27,243)	.074	.153	.071	25(-.18),7(-.16),9(-.16),1(-.15),26(-.13)
Ohio, Part 2	1.497 (27,193)	.127	.150	.095	11(-.16),15(-.13),18(-.13),25(.13),3(-.11)
FECE					15(-.48),13(-.45),10(-.42),14(-.40),25(.39)
New Mexico One	2.680 (27,277)	.122	.187	.062	16(.25),27(.17),19(.15),18(.13),13(-.13)
New Mexico Six (1-10)	1.739 (27,258)	.097	.139	.081	6(.20),16(.15),18(.14),19(.13),17(.12)
New Mexico Six (11-20)	3.607 (27,277	.154	.235	.064	27(.25),22(.24),15(.24),20(.21),6(.24)
New Mexico Two, Seven, Eight	1.583 (27,166)	.055	.161	.073	16(.15),6(.14),19(.12),9(-.11),14(-.10)
Cognitive growth discriminant	2.285 (27,206)	.121	.216	.036	25(-.20),13(-.20),9(-.19),7(-.16),27(-.12)
Affective growth discriminant	2.759 (27,257)	.140	.202	.069	22(.25),15(.24),27(.23),23(.22),6(.21)
Desire to Work	2.230 (27,270)	.113	.169	.051	16(.18),13(-.14),27(.13),19(.10),6(.10)

Table 6.48

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 11: Prepton

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness	2.161 (27, 235)	.199	0.0 (1,235)	0.0	0.0	2.084 (28, 235)	.199
Work values	2.331 (27, 303)	.170	1.515 (1, 303)	.007	.017	2.381 (28, 303)	.180
Interest in career preparation	2.974 (27, 303)	.209	0.0 (1, 303)	0.0	0.0	2.868 (28, 303)	.209
Attitudes towards work	3.035 (27, 303)	.213	0.0 (1, 303)	0.0	.001	2.945 (28, 303)	.214
Knowledge of work values	1.305 (27, 21)	.621	0.0 (1, 21)	0.0	.009	1.323 (28, 21)	.630
Decision making	1.416 (27, 190)	.168	0.0 (1, 190)	0.0	0.0	1.366 (28, 190)	.168
Job seeking/job getting	1.905 (27, 240)	.172	7.714 (1, 240)	.026	.003	2.082 (28 240)	.195
Career awareness	2.361 (27, 291)	.179	0.0 (1, 291)	0.0	.002	2.301 (28, 291)	.181
Economic awareness	.859 (27, 263)	.081	1.446 (1, 263)	.006	.004	.852 (28, 263)	.083
Academic perceptions	.820 (27,273)	.075	1.527 (1,273)	.005	-.003	.818 (28,273)	.077
Social/personal perceptions	1.283 (27,273)	.113	.000 (1,273)	-.000	.000	1.237 (28,273)	.113
Reading achievement							
Math achievement							
Ohio, Part 1	1.798 (27,269)	.153	.000 (1,269)	.000	.000	1.734 (23,269)	.153
Ohio, Part 2	1.483 (27,224)	.152	.313 (1,224)	-.001	.001	1.430 (28,224)	.152
PECE							
New Mexico One	2.608 (27,303)	.187	2.309 (1,303)	-.006	.001	2.597 (28,303)	.194
New Mexico Six (1-10)	1.706 (27,284)	.139	.475 (1,284)	-.001	.001	1.662 (28,284)	.141
New Mexico Six (11-20)	3.443 (27,303)	.235	.000 (1,303)	.000	.000	3.320 (28,303)	.235
New Mexico Two, Seven, Eight	1.368 (27,192)	.161	.000 (1,192)	-.000	.000	1.319 (28,192)	.161
Cognitive growth discriminant	2.424 (27,232)	.219	2.128 (1,232)	.007	-.003	2.375 (28,232)	.223
Affective growth discriminant	2.682 (27,283)	.204	.514 (1,283)	.001	-.001	2.586 (28,283)	.204
Desire to Work	2.204 (27,296)	.167	.532 (1,296)	-.001	.002	2.167 (28,296)	.170

tended to be much more positive than at the overall level of analysis. The joint effects model was almost exclusively dependent upon the process component.

The Studytown data are presented in Tables 6.49 and 6.50. Sufficient students could not be found to support all three of the models, so only the key activity variables have been presented. The process-outcome relationship tended to be positive. The Better Springs data are presented in Tables 6.51 to 6.54. Both the group membership and process models revealed substantial interaction effects. The process-outcome relationships were predominantly positive.

Summary

In this section, analysis of student data at the project level of aggregation yielded four conclusions:

- the group membership model tended to not reveal the presence of treatment effects at the local level that were any more substantial than the treatment effect observed in the overall analyses; of the eight sets of project data available for analysis, only one consistently showed substantial positive treatment effects; for the rest of the sites, treatment effects were either nonexistent or confounded with interaction effects.
- The process model tended to reveal a much more positive relationship between process and outcome than that revealed at the overall level; several sites exhibited an almost uniformly positive relationship across all the constructs.
- The joint effects model continued to show few, if any, effects that could be attributed to the joint effect of process and treatment; they were uniformly disjoint across all the sites, with the bulk of the explanatory power of the joint effects model vested in the process component.

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Table 6.49
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Studytown

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness								
Work Values	66.3 (151)	6.2	64.3 (140)	5.7	66.2 (36)	8.4	68.0 (40)	5.4
Interest in Career Preparation	11.0 (151)	4.0	11.0 (140)	3.5	11.5 (37)	4.3	12.2 (40)	3.6
Attitudes Toward Work	7.9 (151)	1.7	7.8 (141)	1.4	7.9 (39)	1.4	7.9 (44)	1.4
Knowledge of Work Values								
Decision Making	105.1 (109)	11.1	101.5 (106)	13.8				
Job Seeking/ Job Getting								
Career Awareness								
Economic Awareness	4.7 (143)	1.0	4.8 (135)	1.0	4.6 (60)	1.0	5.0 (25)	1.0
Academic Perceptions			58.1 (7)	9.4			52.5 (7)	9.3
Social/Personal Perceptions			47.3 (7)	12.0			50.5 (7)	9.6
Reading Achievement								
Math Achievement								

Table 6-50

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities *

Grade 11: Studytown

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					26(.22),20(-.17),8(.15),15(.14),25(.13)
Interest in career preparation					24(.24),26(.24),15(.21),18(-.20),4(.18)
Atittudes towards work					2(.32),11(.24),10(.22),16(.21),21(.19)
Knowledge of work values					
Decision making					
Job seeking/job getting					
Career awareness					
Economic awareness					19(.27),16-.25),3(-.17),11(.16),27(.14)
Academic perceptions					18(.824),6(.827),24(.805).27(.770).16(.744)
Social/personal perceptions					24(-.861),17(-.729),12(.683),27(-.607),19(-.57
Reading achievement					
Math achievement					
Ohio, Part 1					
Ohio, Part 2					
PECE					27(-.79),11(-.71),5(-.66),8(-.66),25(-.65)
New Mexico One					27(.23),22(.21),15(.20),8(.20),12(.19)
New Mexico Six (1-10)					22(-.28),26(-.26),15(.23),19(-.23),17(-.21)
New Mexico Six (11-20)					18(-.21),16(.20),5(.20),22(.18),20(.17)
New Mexico Two, Seven, Eight					2(-.67),17(-.44),9(-.40),25(-.39),8(-.36)
Cognitive growth discriminant					
Affective growth discriminant					
Desire to Work					

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* There were insufficient degrees of freedom to support the application of the entire model.

Table 6.51
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Better Springs

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	4.9 (114)	4.4	4.8 (133)	5.7	6.8 (123)	4.4	6.5 (134)	5.4
Work Values								
Interest in Career Preparation								
Attitudes Toward Work					8.0 (1)	0.0	6.0 (1)	0.0
Knowledge of Work Values	87.8 (121)	4.0	87.9 (139)	4.4	87.2 (26)	3.3	84.7 (26)	6.8
Decision Making								
Job Seeking/ Job Getting								
Career Awareness	26.7 (123)	3.9	27.6 (139)	2.6	28.3 (124)	2.2	28.1 (138)	2.1
Economic Awareness	4.8 (126)	1.0	4.8 (145)	0.9	4.9 (126)	1.0	4.8 (136)	9.5
Academic Perceptions								
Social/Personal Perceptions								
Reading Achievement								
Math Achievement								

Table 6.52

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 11: Better Springs

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	.000 (1,229)	.000	.000	.001
Work values				
Interest in career preparation				
Attitudes towards work				
Knowledge of work values	3.652 (1,44)	-.022	.026	.001
Decision making				
Job seeking/job getting				
Career awareness	2.988 (1,249)	.010	.012	.039
Economic awareness	.516 (1,258)	.002	.002	.000
Academic perceptions				
Social/personal perceptions				
Reading achievement				
Math achievement				
Ohio, Part 1	5.068 (1,229)	.016	.022	.015
Ohio, Part 2	0.000 (1,226)	-.000	.000	.002
PECE				
New Mexico One				
New Mexico Six (1-10)				
New Mexico Six (11-20)				
New Mexico Two, Seven, Eight				
Cognitive growth discriminant				
Affective growth discriminant				
Desire to Work				

Table 6-53

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities
Grade 11: Better Springs

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.418 (27, 134)	.116	.171	.158	19(.21),11(.18),24(.18),18(.15),14(.13)
Work values					
Interest in career preparation					
Atittudes towards work					
Knowledge of work values					4(-.51),10(-.51),2(-.46),19(.44),21(-.42)
Decision making					
Job seeking/job getting					
Career awareness	1.038 (27, 154)	.111	.132	.121	3(.20),19(.19),16(.17),18(.15),11(.14)
Economic awareness	1.397 (27, 158)	.148	.161	.150	16(.19),18(.18),6(.13),19(.12),11(.11)
Academic perceptions					
Social/personal perceptions					
Reading achievement					
Math achievement					
Ohio, Part 1	1.406 (27,137)	.139	.185	.111	3(.19),19(.18),16(.17),18(.15),17(.14)
Ohio, Part 2	1.061 (27,132)	.124	.148	.144	16(-.19),17(-.15),19(-.14),26(.14),5(-.11)
PECE					26(-.92),2(-.87),4(-.86),10(-.77),1(-.77,
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					
Desire to Work					

Table 6.54

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 11: Better Springs

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness	1.257 (27, 160)	.175	.856 (1, 160)	.004	.004	1.212 (28, 160)	.175
Work values							
Interest in career preparation							
Attitudes towards work							
Knowledge of work values							
Decision making							
Job seeking/job getting							
Career awareness	.970 (27, 180)	.125	2.244 (1, 180)	.011	.007	1.068 (28, 180)	.143
Economic awareness	1.320 (27, 184)	.162	.239 (1, 184)	.001	.001	1.273 (28, 184)	.162
Academic perceptions							
Social/personal perceptions							
Reading achievement							
Math achievement							
Ohio, Part 1	1.368 (27,163)	.177	7.220 (1,163)	.035	.007	1.636 (28,163)	.219
Ohio, Part 2	1.023 (27,158)	.149	.221 (1,158)	.012	-.012	.987 (28,158)	.149
PECE							
New Mexico One							
New Mexico Six (1-10)							
New Mexico Six (11-20)							
New Mexico Two, Seven, Eight							
Cognitive growth discriminant							
Affective growth discriminant							
Desire to Work							

- the constructs tended to be more sensitive to the process and treatment effects than the total test scores; the Ohio Test, Part 1 was an occasional exception, but not to the extent that it was in the overall analyses.

Thus, we had both some good news and bad news. Even at the project level of analysis, either an appropriate nontarget group could not be found, or the outcome measures were not sufficiently sensitive to effects that could be attributed to group membership. The emergence of strong process-outcome relationships at the project level, however, provided a very strong indication that level of aggregation could be a crucial determinant of the observed polarity of the relationship. While, admittedly, the polarity at the project level was by no means uniform, its shifting quality indicated that site characteristics might have a much stronger influence on the process model than would have been suspected.

The inability of the group membership model to work left us in a quandry. If our measures were, in fact, insensitive to treatment, it seemed contradictory that they should be so sensitive to process. The noncomparability of the target and nontarget groups seemed a likely possibility but this was an after-the-fact conclusion about which little, if anything could be done with the present data. Conferences with staff at OCE led to the recommendation that a level of analysis higher than the student be used. Career education, it was pointed out, is delivered at the classroom level. On the other hand, Berman and McLaughlin (1975) found that career education was most effectively implemented when principals were supportive. This suggested that the classroom or the building might be used as the unit of analysis. If the effects are occurring at these levels, then using the student as the unit of analysis might create so much extraneous variance in the data that the presence of main effects would be completely obscured.

Models Applied to Overall Aggregation of Building and Classroom Data

Due to the nature of the educational environment at the eighth and eleventh grades, students cannot be identified as belonging to any one particular classroom. They circulate, instead, through a variety of classroom situations, some, none, or all of which may provide exposure to career education. Consequently, only the building could be used as the unit of analysis at these grades. The building and classroom were both used as units of analysis at the fifth grade, however.

Building Analyses

Due to limitations in the numbers of buildings, only the group membership model could be applied at the eighth and eleventh grades. Sufficient buildings existed at the fifth grade for all models to be applicable. The results of the group membership models are presented in Tables 6.55, 6.56 and 6.57, while the results of the other two models applied to grade five data are presented in Tables 6.58 and 6.59. It was immediately apparent that the explanatory power of the group membership model had not been enhanced even with the vastly reduced number of observations. Nor had changing the unit of analysis substantially altered the

Table 6.55

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 5: Building

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	2.232 (1,64)	.031	.064	.021
Work values	1.449 (1,69)	-.010	.020	.009
Interest in career preparation				
Attitudes towards work	5.376 (1,64)	.020	.077	.000
Knowledge of work values	2.040 (1,68)	.008	.029	.002
Decision making				
Job seeking/job getting	8.370 (1,54)	.051	.134	.001
Career awareness	7.860 (1,76)	.140	.190	.001
Economic awareness	.078 (1,78)	.001	.001	.015

Table 6.56

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences
Grade 8: Building

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	5.950 (1,35)	.025	.145	.001
Work values	4.080 (1,30)	.056	.059	.010
Interest in career preparation	.900 (1,30)	.012	.027	.030
Attitudes towards work	3.886 (1,29)	-.035	.117	.002
Knowledge of work values	7.344 (1,34)	.024	.168	.008
Decision making	1.110 (1,30)	.016	.035	.006
Job seeking/job getting	1.372 (1,28)	-.004	.047	.000
Career awareness	.555 (1,37)	.006	.015	.000
Economic awareness	6.068 (1,41)	.076	.128	.005

Table 6.57

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences

Grade 11: Building

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outcome Variance
Occupational self-awareness	1.062 (1,18)	-.037	.054	.022
Work values	2.816 (1, 16)	-.099	.142	.033
Interest in career preparation	.464 (1,16)	-.015	.027	.015
Attitudes towards work	.663 (1,17)	.010	.037	.000
Knowledge of work values	00[illegible] (1,15)	.000	.000	.013
Decision making	1.884 (1,12)	-.078	.132	.014
Job seeking/job getting	.696 (1,12)	.021	.054	.005
Career awareness	.054 (1,18)	-.002	.003	.001
Economic awareness	1.056 (1,24)	-.034	.041	.023

Table 6.58

Effects of Exposure to Career Education Activities on Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5: . Building

Constructs	F(df)	Process: Prop.Outcome Variance	Process: Prop. Criterion Variance	Interaction Prop. Outcome Variance	Key Activity Variables
cupational self-awareness	1.268 (20,15)	.261	.491	.117	18(.38),6(.32),13(.31),3(.27),17(.26)
rk values	.981 (20,18)	.198	.369	.158	17(.32),18(.25),16(.23),10(-.22),19(.2
terest in career preparation					
titudes towards work	2.768 (20,15)	.199	.696	.033	1(.43),18(.28),5(.25),19(.24),8(.21)
owledge of work values	1.649 (20,17)	.161	.548	.050	3(.42),1(.40),6(.31),13(.31),5(.29)
ision making					
seeking/job getting	1.337 (20,7)	.218	.609	.083	6(.39),11(.38),5(.38),19(.36),2(-.33)
eer awareness	1.061 (20,27)	.217	.281	.279	18(.31),6(.28),5(.27),1(.17),11(.14)
nomic awareness	2.639 (20,26)	.300	.491	.163	18(.37),1(.25),17(.22),8(.21),6(.20)

Table 6.59

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5: Building

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit Variance
Occupational self-awareness	1.417 (20,34)	.423	.126 (1,34)	.002	.067	1.511 (21,34)	.492
Work values	1.173 (20,37)	.334	1.594 (1,37)	-.026	-.015	1.149 (21,37)	.395
Interest in career preparation							
Attitudes towards work	3.479 (20,34)	.615	.395 (1,34)	.003	.081	3.765 (21,34)	.699
Knowledge of work values	2.030 (20,36)	.510	0.000 (1,36)	.000	.038	2.075 (21,36)	.548
Decision making							
Job seeking/job getting	2.350 (20,26)	.525	9.000 (1,26)	.101	.083	3.024 (21,26)	.709
Career awareness	.820 (20,46)	.212	9.500 (1,46)	.123	.069	1.486 (21,46)	.404
Economic awareness	2.134 (20,45)	.481	.145 (1,45)	.002	.010	2.081 (21,45)	.493

direction of the treatment effect; at the fifth and eighth grades the treatment effect was generally positive, while at the eleventh grade the treatment effect was generally negative.

What was especially interesting, however, were the results of the process model. Only two out of the top thirty-five key activity variable relationships with outcomes were negative, that is, the relationship between process and outcome was uniformly positive across all the learner outcomes. The other results from the process model were generally discounted due to the low degrees of freedom and the large number of model parameters. The joint effects model continued to show little in the way of joint effects. With the exception of "Career Awareness," the process component once again constituted the bulk of the model's explanatory power.

Classroom Analyses

The results of the models applied to the grade five classroom data are presented in Tables 6.60, 6.61 and 6.62. For the group membership model, the treatment effects continued to be small but predominately positive. "Attitudes Towards Work" and "Career Awareness" exhibited somewhat more sensitivity to treatment effect than was evident in the overall analyses of the fifth grade student data.

The process model, however, revealed a strong positive relationship between process and outcome. While the relationship was not as positive as the one observed in the analyses of the fifth grade building data, it was considerably more positive than the overall student analyses had indicated.

Table 6.60

Posttest Differences for Target and Nontarget Students' Learner Outcome Construct Scores After Controlling for Pretest Differences
Grade 5: Classroom

Construct	F(df)	Group: Prop. Outcome Variance	Group: Prop. Criterion Variance	Interaction: Prop. Outco Variance
Occupational self-awareness	1.482 (1,78)	.006	.018	.012
Work values	1.530 (1,102)	-.006	.014	.005
Interest in career preparation				
Attitudes towards work	17.712 (1,82)	.041	.043	.003
Knowledge of work values	3.999 (1,93)	.011	.040	.006
Decision making				
Job seeking/job getting	1.960 (1,49)	.011	.038	.006
Career awareness	10.545 (1,95)	.064	.100	.002
Economic awareness	1.926 (1,107)	.011	.017	.011

Table 6.61

Relationships of Learner Outcome Posttest Scores, Controlling for Pretest Differences, with Exposure to Career Education Activities

Grade 5:Classroom

tructs	F(df)	Process: Prop. Outcome Variance	Process : Prop.Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
tional self-awareness	.966 (20,29)	.088	.263	.114	13(.25),17(.19),9(.19),2(-.14),6(.14)
lues	2.151 (20,49)	.158	.358	.103	17(.32),2(-.24),10(-.19),19(.18),12(-
t in career preparation					
es towards work	1.953 (20,31)	.117	.459	.045	1(.39),5(.27),12(-.24),4(.22),18(.20)
ge of work values	1.384 (20,42)	.085	.290	.079	4(.21),1(.20),15(-.18),11(-.17),3(.15)
n making					
king/job getting	2.100 (20,2)	.126	.447	.150	3(.45),16(.28),19(.24),17(.20),15(-.17
awareness	1.025 (20,44)	.167	.254	.132	5(.26),16(.22),6(.22),19(.17),10(-.16)
c awareness	1.253 (20,53)	.140	.243	.140	17(.21),18(.20),15(-.18),2(-.14),9(-13

Joint Effects of Group Membership and Exposure to Career Education Activities On Learner Outcome Posttest Scores, Adjusting for Pretest Differences

Grade 5: Classroom

	Process (C)		Group (A)		Joint (B)	Union (A+B+C)	
Constructs	F(df)	Prop. Crit. Variance	F(df)	Prop. Crit. Variance	Prop. Crit. Variance	F(df)	Prop. Crit. Variance
Occupational self-awareness	.816 (20,48)	.249	.393 (1,48)	.006	.014	.843 (21,48)	.269
Work values	1.906 (20,68)	.356	.729 (1,68)	-.007	.002	1.862 (21,68)	.365
Interest in career preparation							
Attitudes towards work	1.575 (20,50)	.314	4.331 (1,50)	.043	.145	2.400 (21,50)	.502
Knowledge of work values	1.190 (20,61)	.266	2.440 (1,61)	.027	.024	1.351 (21,61)	.317
Decision making							
Job seeking/job getting	1.169 (20,21)	.489	5.419 (1,21)	.113	-.042	1.274 (21,21)	.560
Career awareness	1.295 (20,63)	.268	9.126 (1,63)	.094	-.013	1.605 (21,63)	.349
Economic awareness	1.113 (20,72)	.222	3.826 (1,72)	.038	.021	1.342 (21,72)	.281

In addition, the relationship was consistently positive across all the learner outcome constructs.

Summary

In this section, analysis of building and classroom data at the overall level of aggregation yielded three conclusions:

- the group membership model did not reveal the presence of any treatment effects that analyses using student data had not indicated.
- the process model revealed, at least at the fifth grade level, the emergence of positive process-outcome relationships when a unit of analysis higher than the student level was used; furthermore, the higher the analysis unit level, the more positive the relationship.
- the joint effects model did not reveal the presence of any component effects that analyses using student data had not indicated.

At this point, four different combinations of aggregation level and unit of analysis level have been analyzed by the models. The results from the group membership model have not varied materially from one combination to another. They tended to be uniformly small, and were generally positive at grades five and eight, and generally negative at grade eleven.

As previously stated, this leaves us with essentially two alternatives. One possibility is that while the process and outcome variables have a strong relationship with one another, they have not captured what truly occurs in a federally-funded career education project, nor do they reflect its consequences. Given that the instrumentation used in this study was based on offtheshelf products, this possibility cannot be dismissed. The constructs exhibited little growth on the part of the students from pretest to posttest. If the constructs are, in fact, insensitive to growth, then the likelihood is high that they will be insensitive to everything, particularly treatment effects which will be manifested by the presence of additional growth over and above what would be expected. It is quite necessary, therefore, that any future evaluations of career education be preceeded by the development of new instrumentation that will possess sensitivity to the effects of growth and treatment.

The presence of strong process-outcome relationships, however, does suggest a second possibility, that is, that the adequacy or inadequacy of the nontarget group should merit serious consideration as the prime factor for the failure of the group membership model. For example, consider the possibility that the process of career education goes on, regardless of the presence or absence of formal federal funding. The federal program might be supplanting an effort that would otherwise be taken on by the school administration. A related possibility might be that federally-funded career education programs have an effect on the entire cohort in which the target group is embedded. For example, nontarget teachers could convey to their students information acquired from interactions with target teachers. It has been frequently observed in compensatory education programs that nontarget students benefit by being in a target school; materials and the effects of teacher inservice training will not likely be confined just to the target population.

Continuing with the analogy to evaluation of compensatory education programs, the inability of evaluators to find suitable comparison groups that are not receiving any special services has proved to be a substantial hurdle to the implementation of the USOE Title I Evaluation System. Non-Title I students frequently are either receiving the benefits of Title I indirectly, as described above, or are the target of other educational assistance programs. Inevitably, this is leading evaluators to consider that if the effects of no-treatment cannot be properly documented, then it may be necessary to examine the relationship between outcomes and varying degrees of implementation. From this relationship, expectations regarding the effectiveness of a program can be developed.

These problems, along with the strong process-outcome relationships observed throughout this study, have led us to conclude that the process model will probably be the most useful for evaluation of career education programs. It is a model that must be applied with great care, however. The effects of aggregation level and unit of analysis on the nature of the observed relationships can be profound. This has been evidenced time and again throughout this study. We have seen that the overall aggregation of student data tends to yield negative relationships, but as the unit of analysis is raised from the student to the classroom and building levels, the relationship becomes strongly positive. The relationship can be positive, negative, or mixed when student data is aggregated to the project level. It seems clear, then, that the primary source of this instability is tied to the characteristics of the individual students. It was deemed appropriate, therefore, that this chapter should conclude with a somewhat more detailed application of the process model, both from the viewpoint of assessing how transitory the process-outcome relationships are, and also providing the reader with some insights into the relationships between individual activities and outcome.

Process Model Applied to Varying Aggregations of Individual Students

The purpose of this section is to apply the process model to various aggregations of student data to examine the sensitivity of the process-outcome relationships to the nature of the aggregation. In considering what sorts of aggregation would perhaps be most sensitive, there were two logical choices. The first was to aggregate by project. The effects of this aggregation have been documented earlier in this chapter. The unique characteristics of the sites, such as level of implementation and demographic differences, seemed likely to produce differing process-outcome relationships. The second was to aggregate by ethnicity, or more specifically, black and white students (other ethnic groups did not exist in sufficiently large sample sizes). Chapter 5 documented that blacks tended to report more exposure than whites, much as students in one project tended to report more exposure than students in other projects.

While the combination of the two sets of analyses into one was considered, the absence of either sufficient blacks or sufficient whites within any one of the projects precluded this. Further, to eliminate one possible source of confounding, only target students were included in these aggregations. The basic mode of presentation for these results is a grid where each cell indicates the polarity of the relationship between an activity and an outcome. Each row of the grid is labeled with the activity's item number on the Student Information Form (1-20 for grade 5, 1-27 for grades 8 and 11), while each column is labeled with a letter (A-M) corresponding to the following list of constructs:

A: Occupational Self-Awareness
B: Work Values
C: Interest in Career Preparation
D: Attitudes Toward Work
E: Knowledge of Work Values
F: Decision Making
G: Job Seeking/Job Getting
H: Career Awareness
I: Economic Awareness
J: Academic Perceptions
K: Social/Personal Perceptions
L: Reading Achievement
M: Math Achievement

An "X" is used to indicate a positive relationship between an activity and an outcome, while a blank indicates a negative relationship. In addition, an "O" is used to indicate that the activity was among the ten key activities for that construct; i.e., those activities most strongly related, either positively or negatively, to the constructs. Each column should, therefore, have ten O's; if a column is entirely blank, the reader can assume that the construct was unavailable for that particular aggregation unit. The means, standard deviations, and process model statistics for each project are included in Appendix C. The reader is welcome to peruse them but for purposes of this section we are concerned only with the polarity of the relationships. The activity outcome relationships were drawn from the partial correlations of activities with outcomes after the effects of pretest had been statistically removed.

Project Aggregation

The process-outcome grids are presented for each grade in Tables 6.63, 6.64 and 6.65. As an example, consider the grid for fifth graders in Opportunity City which appears in the upper left hand corner of the first page of Table 6.63. Fifth graders did not take the tests from which the constructs "Interest in Career Preparation" and "Decision Making" were drawn. Consequently, columns C and F are blank, as they are for all the fifth grade grids. Students at Opportunity City did not have individual achievement test data. Thus, columns L and M are also blank. "Occupational Self-Awareness," the construct represented in column A, had a negative partial correlation with activity 1 (use media) that was of sufficient magnitude to place that activity among the ten key activity variables. "Occupational Self-Awareness" was positively correlated with activities 2 and 3 (career fair, talk with students), but neither of these correlations were high enough to place those activities in the top ten. The positive correlation with activity 6 (study interests needed), on the other hand, was high enough to place it in the top ten. An

Table 6.63 (1)

Project-Level Process-Outcome Relationship (Grade 5)

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	O	⊠		⊠						X			
02	X	⊠		O							⊠		
03	X	⊠		⊠						⊠	⊠		
04	O	O											
05		⊠		⊠						X			
06	⊠	⊠		X						⊠	X		
07		O		X						O	O		
08	O									O	O		
09		⊠		X						X			
10	O			O									
11	X			O						O			
12	O			O						O	O		
13	O	O									O		
14	O									O	O		
15	O	X		⊠						O			
16				⊠						X	X		
17		⊠		X						O	O		
18	O			O							O		
19	X	X		X						O			
20										O	O		

OPPORTUNITY CITY

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	O	O		X	O					X		X	O
02	X	O		O			O		O	X		O	O
03		O		O				O	O	O	O	⊠	
04	X	X		O			O	O				X	X
05	⊠	X					X		X	⊠	⊠		
06	X				O		O		O	O	⊠	X	O
07	O	O		O	O		O	O		X	X	O	O
08	⊠	X					X		⊠	⊠			
09	O	X		O	O		O	O		O		O	O
10		O		O	O			O	O	X	X	O	
11				O	O		O	O		⊠	⊠		O
12	O	O		O	O		O	O	O	X	⊠		O
13		⊠		O	O		O	O	O		⊠	O	O
14							O	O	O	O	O	O	O
15		O		O	O		O	O	O	O		O	
16	⊠	⊠		X			X	X	⊠			⊠	X
17	X				O				X	X	⊠	X	X
18	⊠				X		X	X	X	O	X	X	
19	⊠				X				X	⊠	⊠		
20	X	O					X				O	O	O

JOBLAND

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01					⊠					X	X		X
02					X					X	⊠	X	
03					⊠				X	⊠	⊠		⊠
04					X				O	X	⊠	X	O
05					⊠				X	⊠	X	⊠	
06					⊠				⊠	⊠	⊠	⊠	X
07									O	⊠	⊠	X	
08					⊠				O		⊠	O	O
09					X				O	⊠	X	O	X
10					X				O	O	X	O	O
11									O		X	X	
12					⊠				O	⊠	X	O	
13									O		X		⊠
14					⊠					⊠	X	⊠	
15									O	O			O
16					⊠						⊠	O	
17					⊠				X	X	⊠	O	O
18					⊠					X	⊠	⊠	⊠
19									X	⊠	⊠		O
20												X	⊠

WORKVILLE

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01										⊠	⊠	X	
02								O		O	X	⊠	
03										O	⊠		X
04								O		O	X		⊠
05										X	⊠	⊠	O
06											X	⊠	O
07								O			⊠	O	X
08								X		X	⊠		X
09								O		O	⊠	O	O
10								⊠		O		O	⊠
11											X	X	⊠
12								O				O	O
13								O		⊠	X	⊠	X
14										O	⊠		
15								O		X	X	X	X
16										⊠	X		⊠
17								O		⊠	⊠		X
18								X		X			
19								X		X	O	⊠	
20								O			⊠	O	O

TREKSVILLE

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	O			⊠	O		O		⊠	⊠	⊠		
02	⊠	⊠		O	⊠			O	O	⊠	O		
03	O			X			X	X	O	X	⊠		
04	X	⊠		X	⊠			X	⊠	X			
05	X	X		O	O		⊠	⊠	O		⊠		
06	O						O	O		⊠	O		
07	X	⊠		X	X		O	O		⊠	O		
08		X			O		⊠			X	⊠		
09	O	O		X			O		X	⊠	X		
10	O				O		O			⊠	X		
11	X	⊠			⊠	X		⊠		O	X		
12		X			X			O		X	O		
13	X	X		X	X			O		⊠			
14	X	⊠		O			O	O		⊠	O		
15	⊠	⊠		O			X	O	O	⊠	O		
16	⊠	X			O		X		O		X		
17	⊠	⊠		⊠			X	X	X	X			
18	X	⊠		O	⊠		⊠	⊠		⊠			
19		X		O	O			O	O	X	X		
20	⊠	⊠		⊠	O				O	⊠			

FALLSTAFF

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X	X			⊠		O		X	O			X
02		O		O	O		O	O		O	⊠	O	O
03	O	X		O	X		X	O	O	X	⊠	O	O
04	O			⊠			O	O	O	O	O	O	
05	⊠	⊠		X	⊠		O		X	⊠	⊠		
06	⊠	⊠		X	⊠		O		X	X			X
07	X	O			O		X	O	O	O		O	O
08	⊠	O		O			O	O	X		⊠	O	O
09				X	X			O			X		O
10	X	O		⊠	O			O	O	O	⊠	O	O
11	⊠	X		⊠			X			O	O		
12	X	O		⊠	O		O	O	O	X	⊠	O	O
13		O		X	O			O	O	O	⊠	O	O
14	X	O							O	O	X	O	
15	X	X		O	X			O	O	⊠	⊠		O
16	⊠	X		⊠	X				⊠	X	X		X
17	X	X		X	⊠		O	X	X	X	X		X
18	⊠	X		⊠			O		⊠		X		
19	⊠	⊠		X	⊠		O	X	X		X		
20	O	X									X	O	O

VOCATION BEACH

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	O	O		O			O	O		X		X	
02				O			O			⊗	⊗		O
03		X			⊗			⊗		O	O	⊗	
04	O				⊗				X	X			O
05	X			O	X			⊗	⊗		X	O	
06		⊗		O	⊗		⊗	⊗	⊗	X	O	⊗	⊗
07	O			O	X			X	X	⊗	⊗		O
08	O			O	O		O	O	X		⊗	⊗	O
09	O	O			X				⊗	⊗			
10	O	O		O			X	O	O	⊗	⊗	O	O
11		⊗			⊗		O	⊗	⊗	⊗		⊗	⊗
12	X	⊗		O	⊗		⊗	⊗	⊗	X	X	⊗	X
13							X	X	⊗	O		X	X
14	X	X			X		⊗	X	⊗	O	⊗	X	X
15	X								⊗	⊗	⊗		O
16	⊗	⊗		X	⊗		⊗	⊗	X	X	X	⊗	
17	⊗	⊗			⊗		⊗	X	⊗	O	⊗	X	
18	O	O		O	⊗		X	X	X		X	⊗	X
19	X	X					⊗	X				⊗	⊗
20	O	O		O	O			O		X	⊗		O

UNIQUE DOMAIN

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X			X	⊗		X	O	X	X			
02					⊗		O	O			X		
03	⊗	⊗		⊗	⊗			X	O	O	⊗		
04	⊗	⊗		X	⊗		X		⊗	X	X		
05	⊗	X		⊗	X		X	X		X	⊗		
06	X	O		⊗	⊗		X			O	O		
07	⊗	⊗		X	⊗		⊗		X		⊗		
08	⊗	X		⊗	⊗		⊗		⊗	X	⊗		
09		X		O			O		O	O	X		
10				X	X		O	O		O	O		
11	⊗	X		X	X		X	⊗	⊗	⊗			
12	X	O		X	X		O		O				
13		X		X	⊗		O	O	O				
14		⊗		⊗	X			O		O	X		
15	O	⊗					X		O	O	O		
16	X	X		⊗	X		⊗	⊗	⊗	⊗	X		
17	⊗	⊗		⊗	X		⊗	⊗	⊗	X	⊗		
18	⊗	⊗		⊗	⊗		⊗	X	⊗	⊗	⊗		
19	⊗	⊗		X	⊗		X	O	X	⊗	⊗		
20	X	X		O				O		O			

MT. EXPLORATION

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	⊗	X		⊗			⊗	O	X	X	⊗		
02	O	O			⊗		O	X	X	⊗	X		
03	⊗	⊗		⊗	⊗		⊗	X	O	⊗	⊗		
04	X	X		⊗	⊗		X	⊗	⊗				
05	X						O	⊗	X		O		
06					O			O	X		⊗		
07	X	X		X	X		O		⊗		X		
08	X	⊗		⊗	⊗		X	O	X	⊗	⊗		
09		X			⊗		X	X	⊗	X	X		
10	O	X		O	X			O	⊗	X			
11		⊗		X	X			O	⊗	⊗	⊗		
12	X	O		⊗	X			X	⊗	X	⊗		
13	O	O		O	O		O	⊗	⊗				
14	O	⊗						X	⊗	X	X		
15	O	O		X					⊗	O	X		
16	⊗	X		X	X			X	X	⊗	⊗		
17	⊗	⊗		⊗	⊗		⊗	⊗		X	⊗		
18	O			O			O	⊗		O	X		
19	X				O		O		X	O	⊗		
20		⊗		O	O		O	X	⊗	O			

PREPTON

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01		X							X	X	X		
02		X			O				X			X	X
03		⊗						⊗	X	⊗	⊗		X
04								⊗	O	X		O	O
05		⊗						⊗	X	⊗	⊗	O	X
06		⊗			O				O	X	⊗		⊗
07		O			X					X	X	O	
08									⊗	X	⊗	O	O
09					O				O	⊗	X	O	O
10		O			⊗				X	O	O		
11		X			⊗			X	⊗	X	X		⊗
12		X						O		⊗	⊗	O	
13		O			X			O	O	⊗	X		
14		O			O			O	O	X		O	O
15					O			O	O	⊗	X	O	O
16		⊗			X			X	⊗	⊗	⊗	X	⊗
17		⊗			O				X	⊗	⊗	X	X
18		X			X			⊗	X	⊗	⊗	⊗	⊗
19		X			O			O	O	X	X	O	
20		O			⊗			O		X	⊗		X

STUDYTOWN

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X	⊗		X	O					O	⊗		
02	O				O			O		X	X		
03	⊗	⊗		⊗	O		⊗	X	⊗		O		
04	⊗			⊗			⊗	O	X		O		
05	⊗	X		⊗	X		⊗	O	⊗				
06	⊗			X	O		X	X	O	O			
07	X	O		⊗	O		X	X	O	X			
08	X			X					O	O	⊗		
09	⊗							O	X		X		
10	X	O		⊗			⊗	O	X	⊗	O		
11	X			X				O		O	⊗		
12		X			O		O	O	O	X	⊗		
13		O		O			O		O	O			
14				X	X			O		O			
15	O	X		X	O		O	O	O	X	⊗		
16	X	⊗		⊗	⊗		O	⊗	⊗	O			
17	⊗	⊗		⊗	⊗		O	X		⊗			
18	⊗	⊗		⊗	⊗			X	⊗	X	X		
19	⊗	X		O	X					X	⊗		
20	X	⊗			X		O		X	⊗	⊗		

COGNITIVE CAMP

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X	X		O	O				O	X	⊗	O	
02	⊗	⊗			O		O		O	O	X	⊗	X
03	⊗	⊗		X	X		X	⊗	X	⊗	⊗	O	O
04	X	⊗					⊗		⊗	X	X	O	O
05		⊗		X			⊗		X	O	⊗		O
06	X	X		O	X		X				⊗	⊗	⊗
07	O	⊗		O	O		O		O	O	⊗	X	
08		O		O	O			O		X	X	X	O
09	X	X		O			O	X	O		⊗	X	
10	O	X		O	O		O	O	O	X	⊗	O	O
11		⊗		X			O	O		X	X	O	X
12	⊗	X		O	O		O		O	⊗	⊗	O	X
13		⊗		X	O		X	O		O	⊗	⊗	X
14	O				O		X	O	X	O	X		O
15	O	⊗			X		⊗	O	X	O	X		
16	X	X		O	O		O		O	O	⊗		X
17	⊗	⊗			X			⊗			X		O
18	O			O			X	O	X	O	X		O
19	⊗				X				O		X	O	O
20				O	O			O	O		X	X	X

MIDDLESEX

```
ACT.  ABCDEFGHIJKLM
 01   ⊗⊗ X⊗ ⊗⊗XXX X
 02    ⊗ OX XO XXOO
 03   X⊗ X  ⊗ X X⊗⊗
 04   OX X⊗ ⊗⊗⊗X⊗ O
 05   ⊗X ⊗  ⊗X ⊗⊗OO
 06   XX ⊗⊗  X⊗XOX⊗
 07    X XO  XO⊗X⊗
 08    ⊗ ⊗X XXXO⊗⊗⊗
 09   ⊗X X  O X  X⊗
 10   X  ⊗O OO ⊗⊗⊗X
 11   ⊗  ⊗  ⊗O⊗⊗⊗ ⊗
 12   O⊗ XO ⊗ XXXO
 13   X⊗  X XOX⊗ X
 14   XX  O   O⊗⊗X⊗
 15   OX ⊗O OO⊗X  X
 16   ⊗⊗ ⊗⊗ ⊗⊗⊗⊗⊗ X
 17    ⊗ ⊗⊗  X⊗ ⊗
 18   ⊗⊗ X  X⊗⊗⊗⊗⊗⊗
 19   X⊗ ⊗   O⊗⊗⊗O
 20   OX XX XXXOXO
```

CAREER CITY

```
ACT.  ABCDEFGHIJKLM
   1    ⊗  ⊗   0X
   2   0X
   3   0X  X  ⊗ ⊗
   4   0X     X
   5   0   X  ⊗
   6   0⊗  ⊗   XX
   7   X   X   0X
   8   0⊗  X    X
   9   X   X  X 0
  10    X  X  ⊗0X
  11   0   ⊗   X⊗
  12    X  0  XXX
  13    X  X  XXX
  14   0   X  X ⊗
  15    ⊗  ⊗  ⊗0X
  16   XX  X  ⊗XX
  17   X⊗     X 0
  18    X  ⊗  ⊗⊗⊗
  19   ⊗X  ⊗  ⊗
  20    X  X  ⊗
  21   ⊗⊗  X  X00
  22   X⊗  ⊗  ⊗0X
  23   X⊗  ⊗  X 0
  24    ⊗  X  ⊗
  25    X  X   00
  26          X0
  27   ⊗⊗  ⊗  X00
```

OPPORTUNITY CITY

```
ACT.  ABCDEFGHIJKLM
   1  XXX⊗X  XX⊗0X⊗
   2    XX  ⊗XXX⊗X0
   3  X⊗X⊗X ⊗X⊗⊗ ⊗
   4  0X  00⊗00X X0
   5   ⊗X⊗X   X⊗X0X
   6  X⊗⊗⊗X  X⊗XX⊗X
   7  0X⊗  0X0 X⊗00
   8  0X⊗X  ⊗X⊗ ⊗⊗⊗
   9  0X⊗ 0 X X⊗ X0
  10   XXX0 X  XXX0
  11  X⊗ X⊗X 00XXX0
  12   X⊗X⊗ ⊗ ⊗XXX
  13  0 X X  0XX X
  14  XX XX ⊗ ⊗⊗X⊗
  15   X⊗X⊗ X0X⊗⊗X
  16  ⊗X ⊗X⊗⊗⊗⊗ ⊗X⊗
  17  ⊗XXX X⊗⊗⊗ X⊗⊗
  18  X⊗X⊗⊗⊗⊗ XXX⊗X
  19   ⊗XX  ⊗ X⊗0⊗X
  20  ⊗X    X X⊗
  21     .XX  X X⊗
  22   ⊗⊗⊗00X  ⊗0X
  23  X⊗⊗⊗X0X0XXXX
  24  X⊗X⊗X0X00X0
  25  0 X 00X0 ⊗0X
  26  0XXX  ⊗    X
  27  X⊗⊗⊗0 X XXXXX
```

JOBLAND

```
ACT.  ABCDEFGHIJKLM
   1           XX⊗X
   2           XXX0
   3           ⊗⊗⊗0
   4          0 XX
   5          X ⊗⊗
   6           0XX0
   7            ⊗⊗0
   8          00⊗X
   9          X0⊗⊗
  10          0 XXX
  11          0X X
  12          0XXX
  13          X0⊗X0
  14           X⊗⊗
  15          0 X⊗0
  16           X XX
  17          0 XXX
  18          XXXXX
  19           0X
  20          X⊗X⊗0
  21          X⊗X
  22          0 XX
  23          00⊗⊗
  24           0⊗X
  25          XXX⊗0
  26          0 ⊗X0
  27            X 0
```

WORKVILLE

```
ACT.  ABCDEFGHIJKLM
   1  X⊗X⊗X⊗  X0 XX
   2  X0X ⊗ 0   X00
   3  ⊗⊗X⊗XXX ⊗00XX
   4   XX 00 X   0
   5   XXXX0X X00
   6  ⊗⊗⊗⊗⊗⊗⊗⊗⊗X0X⊗
   7   XX0   0  0
   8  XX⊗⊗XX  X ⊗
   9    ⊗ ⊗ 00XX000
  10    X0 0   0⊗X⊗
  11  XX⊗⊗ XX⊗X ⊗X
  12  XXX00000 X000
  13  0 X 0000 ⊗000
  14  X⊗XX0X X⊗ XXX
  15  XX⊗ X 00X0⊗0
  16  ⊗XXX 0XX⊗ XXX
  17  ⊗XXXX XX⊗ ⊗XX
  18  ⊗⊗X⊗⊗⊗⊗⊗⊗0X⊗⊗
  19  ⊗⊗⊗⊗⊗XX ⊗ X X
  20  ⊗⊗⊗   XXX0 XX
  21  XXXXX   X   0
  22  X⊗⊗XXX0 X  0
  23  XX⊗XX 00⊗X 00
  24  XXXXX⊗XX⊗XXXX
  25  0 X   00 X⊗00
  26  XXXXXXX X   X
  27  ⊗⊗⊗X⊗  X⊗0X
```

FALLSTAFF

```
ACT.  ABCDEFGHIJKLM
   1  XX⊗   ⊗  ⊗000
   2   0X0  00 ⊗X
   3   ⊗⊗0  X  X0 ⊗
   4  X  X  XX  ⊗0
   5    X    0 X ⊗⊗
   6  XXXX  X  0⊗ X
   7   0X   00 X
   8  ⊗X⊗⊗  ⊗    XX
   9   XX   00  X0
  10  XX⊗   X  X⊗
  11  0XX0  0  0XX⊗
  12  ⊗X⊗   X  ⊗
  13  0XX0   0   XX
  14  X X0      X00
  15   X⊗0       X⊗
  16  0XX   ⊗X 0⊗0
  17  0XXX  ⊗  0⊗X⊗
  18  X⊗XX  XX ⊗⊗XX
  19   X⊗   X   XX⊗
  20  X⊗X0  X0 XX00
  21  ⊗⊗X      000
  22  X0⊗    0 X 0
  23  ⊗ ⊗   ⊗     X
  24  XXX   0  X ⊗⊗
  25  00X0   0 ⊗  X
  26  ⊗0XX  X0 XX X
  27   ⊗⊗0   0  0 X
```

VOCATION BEACH

```
ACT.  ABCDEFGHIJKLM
   1     0 XXX0X  X
   2   00XX0   X  X
   3  XX  0⊗ X0⊗ 0
   4  X XX0X ⊗ ⊗  0
   5   X0X ⊗XXX  XX
   6  X⊗0  ⊗ ⊗⊗  ⊗
   7  X⊗⊗X0⊗X⊗0X0X0
   8  X  00⊗0  X0⊗
   9  ⊗0 ⊗0  0XXX00
  10  ⊗XX⊗0XX⊗ ⊗00
  11   X00XX00X⊗XX
  12  ⊗  0X  X
  13  ⊗⊗X⊗XXXX ⊗0 0
  14  ⊗XXXXX⊗⊗ X  0
  15  ⊗ ⊗ 0   0⊗ 00
  16   0000 000  XX
  17  ⊗ 00 X0 0 0XX
  18   X0 X⊗XXX X⊗⊗
  19  XX0XX⊗⊗X⊗ XX
  20  ⊗⊗X⊗XXXXX⊗ 00
  21  XXX 0 0  X0XX
  22  X⊗X 0X0X0X0
  23  ⊗⊗X  X X ⊗
  24    XX  ⊗X0X X0
  25  ⊗⊗X X0 ⊗ ⊗000
  26  XX   X0X ⊗0
  27  XX XX⊗X⊗ X0⊗X
```

UNIQUE

Table 6.64 (2)

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
1	X	X	X			0	0				X		
2			X	0	0	0	0		0	⊗	0		
3	X		X		X	X	X	X	X	X	X		
4	0		⊗	0	X			0	0	⊗	0		
5	X	0	X		0		0				X		
6	X		X	X							⊗		
7	⊗	0	X	0		0			0	⊗	0		
8		X	X		⊗					X	⊗		
9			⊗	0	X			0			X		
10		X	X	0			0			X			
11	X	X	X	X	0	⊗		X		0	⊗		
12		X	⊗	0	X		X	0	0	0	X		
13	0	0	⊗	0	0	0	0	0			X		
14			X	X	X			0			X		
15	X		X	0		X	0	X	0	X			
16	⊗	X	X	X	X	X	X		X	X	X		
17	⊗	⊗	X	X	⊗	⊗	⊗	⊗		0	⊗		
18	⊗	⊗		⊗	X	⊗	⊗	⊗	X	0	⊗		
19	⊗	X	⊗	X	⊗			X			X		
20	0	0	X		0			0	0	X			
21	X		⊗		X	0		X		⊗	0		
22		⊗	X	X			X		0		⊗		
23	0		⊗		X		⊗		0		X		
24		⊗	⊗		X								
25	0	0	⊗		0	0		0	0	X			
26		0	X			X	0	0	0	⊗	X		
27	X		⊗	0	0	0				⊗	X		

MT. EXPLORATION

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
1		0	⊗	0	0	0	0			X	X		
2			X		0	0	0	0	0		0		
3			X				X		X	0	X		
4			⊗	X		0	0			X	0		
5	⊗		X		X								
6	⊗	X	⊗	X			X	X		0	X		
7			X		0			0					
8	X	X	X	X	⊗								
9		0	X			0	0	0	0		X		
10			X	X	0			0	0	0	X		
11	X	X	X	X	X				X	0	⊗		
12		⊗	X	0	0	0			0				
13			X	0	0	0	0	0	0		X		
14	0		X			0		0	0		X		
15			X		0			0	0		X		
16	⊗	⊗		⊗	X	X	⊗	X	X		⊗		
17	⊗	⊗		X	X		X	X	X	0	⊗		
18	⊗	⊗	X	⊗		X	⊗	X	X	0	⊗		
19	⊗	⊗	⊗	⊗			⊗	X	X	0	⊗		
20		0	⊗	0	0			0	0		X		
21	X		⊗	X		0		X			⊗		
22	⊗		⊗	0	X					0	X		
23		X	⊗	0						0	⊗		
24	0		X	X			X	X			⊗		
25		0	⊗	0	0		0	0	0				
26	0	0	X			0	0	0	0	0	X		
27	X		⊗			0		X	X		X		

PREPTON

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
1		⊗	⊗			X		X					
2		⊗	X						0			0	0
3	X	X	⊗			⊗		X	X				
4	0	X	⊗									0	
5	X	⊗	X			X		X	⊗				
6	⊗	X	⊗			X		⊗					X
7			X			0		X				0	
8	0	X	⊗			⊗		X	⊗				X
9	0	X	X			0						0	X
10	X	X	X					⊗					X
11	X	X	X			0		X					⊗
12		⊗	⊗					X				0	0
13		⊗	X					X	0				0
14	0	X	X			X		0	0			0	
15		X	X						0			0	
16	⊗	X	X			0		⊗				⊗	⊗
17	⊗	X	⊗					⊗				X	⊗
18	⊗	⊗	⊗					X	0			X	⊗
19		X	⊗			⊗		0				X	X
20	⊗	X	X					X	0			X	X
21	X	X				X		X				0	
22	X	⊗	X			⊗		⊗				X	X
23	X	⊗	X			0		⊗	0				X
24	X	X	X					0					0
25		⊗	X					X	X			0	0
26	⊗	X	X			⊗		⊗	⊗				
27	X	⊗	⊗			X		X				X	⊗

STUDYTOWN

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
1					X				X	0	X		
2					X					0	X		
3	⊗				X			X	X	0	X		
4					0			0			⊗		
5	⊗				X				X				
6	X				X			X	X		⊗		
7	X				X						⊗		
8								0	0		X		
9					0			0	0		X		
10	X				X					X	⊗		
11	X				X					0	⊗		
12	X				⊗				X	⊗	X		
13	X							0	0		X		
14	⊗				⊗			X	⊗		X		
15	0				0			0	0	0	X		
16	⊗				X			X		X	X		
17	X				X			X			X		
18	⊗				⊗			⊗	⊗	X	X		
19	X				X			X	⊗		⊗		
20	X				X			0	X				
21	⊗				⊗			X	X		⊗		
22	X				X			0			X		
23	⊗				⊗			0	⊗	0	⊗		
24					X					0	X		
25	0				0			0	0	0	⊗		
26	X				X					0	⊗		
27	⊗				⊗			X	⊗		X		

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
1	X				⊗				X				
2	0							0					
3	X								⊗				
4													
5									⊗				
6	X				X				X				
7	0								0				
8								0	X				
9					0				0				
10									X				
11	X							0	⊗				
12					⊗			X					
13	0				⊗			0					
14	X												
15	0							0					
16	⊗				⊗			⊗					
17	X							⊗					
18	⊗				X			⊗					
19	X				⊗			X					
20								0					
21													
22	X												
23					⊗								
24	⊗												
25	0				0								
26	0				⊗			0					
27	0				⊗								

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
1	⊗		X		0	0			X		X		0
2	X	X	X	⊗	0		X			0	X		X
3	X	⊗	⊗		⊗	⊗	X	X	⊗	0	⊗		0
4		⊗	X	X			X		⊗		X		0
5	⊗	X	X	⊗	⊗	⊗	X		X			0	
6	X	⊗	X	X	⊗	X			X		X		
7	X	X	X				0	0					
8	X	X	⊗	X	0	0	X	X	X		X	X	
9	X	X	X	0	X	0	0	0	⊗		⊗	0	0
10		X	X		X	X	⊗	X	⊗	X	⊗		X
11	⊗	⊗	X	X	⊗				⊗		⊗	X	
12	X	X	X		X				[illegible]		X	0	
13	X	X	X		X	X				0	⊗		
14	⊗	X	X	0			0	0	⊗		X	0	0
15	X	⊗	X	X		X	0	0			⊗	0	0
16	⊗	⊗	X	⊗	X	⊗	⊗	X		0	X	X	X
17	⊗	⊗	⊗	⊗	⊗	⊗	X	X	X	0	⊗		
18	X	X	X	X	⊗	X	⊗	⊗	X	0	X	⊗	⊗
19	⊗	⊗	⊗	X	X	X	X		⊗		X	X	
20	⊗	X	X	X	0			0		0	⊗	0	0
21	X	X	⊗	X	X	0		0	X		⊗		
22	⊗	X	⊗	X	X		0	0	⊗		X	0	0
23	⊗	⊗	⊗	0			0	0	X	0	X	0	
24		X	X	0	X					0	X		
25		X	⊗	0		0	0	0	0		X		
26	X	X	⊗	X			X		0		⊗	0	0
27	X	⊗	⊗	⊗		⊗		X	X	0	⊗		

Table 6.65(1)

Project Level Process-Outcome Relationships—Grade 11

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01		⊗	⊗	X					⊗		⊗		
02		X	⊗	⊗							X		
03		X	⊗							O	⊗		
04		⊗	⊗						X		X		
05		X	X	X					⊗		X		
06			X	⊗					⊗		X		
07		⊗	⊗						X	X			
08		⊗	⊗	X					X	X	X		
09			⊗	X					X	O	⊗		
10			X	⊗					X	O	⊗		
11		⊗	X	X					⊗	O	X		
12			⊗						⊗		⊗		
13		⊗	X	O					⊗	X			
14		X	X	X					⊗	O	⊗		
15									⊗		X		
16		X		X					X	O	X		
17		⊗	X	X					X	O	X		
18			X	X					X		X		
19		⊗	X	⊗					X		X		
20			X	O					⊗	O	⊗		
21		⊗	⊗						X		X		
22			X	O					X	X			
23		X	⊗	⊗					⊗		⊗		
24		⊗							X	⊗			
25		X	X	⊗					X		X		
26									X	X	O		
27			X	⊗					X	O	⊗		

OPPORTUNITY
CITY

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X	⊗	X	X				O	X		X		
02	X	X	⊗	X	X	⊗			⊗	O	⊗		
03	⊗	⊗	X	⊗		O		O	X	O	X		
04	X		X	X	O	⊗	O				X		
05	X	⊗	⊗							X			
06	⊗	⊗	⊗	X	⊗	⊗	X				X		
07		X	X		X		O	O	X		X		
08		X	⊗		X	O	O	O	X		X		
09	O				O	O	O	O	O		X		
10	⊗		X	X	⊗	X	O	O	⊗	X			
11	⊗		X	X			X				X		
12		X	X		O		O	O		O	⊗		
13			X	O	O	X	O	O	O		X		
14		X	X	X	O		O		⊗	O	⊗		
15		X	⊗	O	X	O	O	O			⊗		
16	⊗	X	X	⊗	⊗			X	X	O	⊗		
17	X	X	⊗		X	O			X		⊗		
18	⊗	⊗	X	⊗	X	⊗	⊗	X	⊗	O	⊗		
19	⊗	⊗	⊗	⊗	X	X	X		⊗	O	⊗		
20	O		X	X	O				X		X		
21	X	X	X	X		⊗			X		X		
22	X	⊗	⊗	⊗			X		⊗	O	⊗		
23	X	⊗	⊗	⊗					X		X		
24	X	⊗	X	X	O	X			X		X		
25	X	X	X	⊗			O	O		O	X		
26		X	X			X	X		O		X		
27	⊗	⊗	⊗	⊗		X			⊗	O	⊗		

JOBLAND

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01									⊗	⊗	O		
02									X	⊗	O		
03											⊗		
04										⊗	O		
05									X	⊗			
06										⊗	X		
07										⊗			
08									O		⊗		
09									⊗	X	X		
10									O	X			
11										X	X		
12									X	⊗	O		
13									O	⊗			
14									X	X	X		
15									O	X	⊗		
16									X		X		
17									⊗	X	X		
18										X	⊗		
19									X	⊗			
20										X			
21									O	⊗	X		
22										X	X		
23									⊗		⊗		
24										X			
25										X	X		
26									⊗	X			
27									X	X	⊗		

WORKVILLE

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X				⊗			X	⊗		⊗		
02								X		X	X	X	
03	X				⊗			X	⊗		⊗	O	
04	X									X		X	O
05	⊗							⊗	⊗	X			
06	⊗				⊗			⊗	⊗	O	X	X	
07	⊗							X	⊗	O	X	O	O
08	⊗				⊗				X		⊗	O	O
09	X				X					O		O	
10	X				⊗				⊗	X	X	O	O
11					X				⊗		X		
12	X								X	⊗	O		O
13									X		X		
14					X			X			X		
15								X	X	O	X		
16	X				X			⊗	X	X		X	⊗
17	⊗				⊗			⊗	X	X		⊗	
18	X				⊗			X	⊗		X		
19	⊗				X			⊗	X		X		X
20	X				O			⊗	⊗		⊗		O
21					X			X			⊗		
22	⊗				X			⊗		O	⊗		
23	⊗							⊗	X	O	X	O	
24	X				O			⊗	X	O	⊗	O	O
25	⊗							X	⊗	O	⊗	X	O
26	⊗				O			⊗	X	O	⊗	O	O
27	X				X			X			X	O	

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01		X	⊗	O			O	X	O	X			
02	⊗	X				O		X		⊗	O		
03	⊗	⊗	X	⊗	⊗	X	⊗	⊗	X	X			
04			X		O	O			O	X			
05	⊗	X	⊗	X	O	⊗		X					
06	X	⊗	⊗			⊗	X	X	⊗		X		
07			⊗		O	X			O	X	X		
08	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	X	⊗	O		
09			⊗	O	O		O		O	X	O		
10		O	X		O		O	X	O	⊗			
11	⊗	⊗		⊗	⊗	⊗	X	⊗	⊗	⊗	O		
12	X	X	X	X		X	⊗	X	X	⊗	O		
13	X	X	⊗	X	X			X	X	X			
14	⊗	X		X	X		X	X	X	X	X		
15	X	X	X	⊗	X		X	X	X	⊗	O		
16	X	X	X	X		X	X	⊗	⊗				
17	X		X				O	X	X				
18	⊗	⊗		⊗		X	⊗	⊗	X	X	X		
19	⊗	⊗	X	⊗	⊗	⊗	X	⊗	⊗		X		
20	X			X	X	X	⊗		X		X		
21	X	X	⊗	X	X	⊗		⊗	X	X			
22	X	⊗	⊗	⊗	X		X	⊗	X	X			
23	X	⊗	⊗		X	X		X	X	⊗	O		
24	⊗	X		X	⊗	⊗	X	⊗	X	⊗	O		
25	X	X	X	X	X	O	X	⊗	X	⊗	O		
26	X	X	X	X	X		O	X	X	⊗	O		
27	⊗	⊗	X	⊗	⊗	X	X	⊗	⊗	X	X		

ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M
01	X				⊗			O	X	O	⊗	X	⊗
02	X	X	⊗		⊗			X	X	O	X	⊗	X
03	O		⊗	O					X	⊗	X		X
04		X	⊗	O	X			X	X	⊗	O		
05	O	X	⊗		X			O	O	⊗	O		
06	O	O	X		X			O	X	⊗	O	O	O
07		⊗	⊗					X	X	O	X	X	X
08	O		X	O					X	X	X	O	O
09			X		X			X			X		O
10			X		X			X			X		O
11	O				X					X	X	⊗	⊗
12	X	X	X	O	X					O	⊗		X
13		X			O			⊗	⊗	X			
14	O	⊗	X	O					O	X			
15	O	⊗	X	X	O				⊗	X	X	X	
16			X					⊗	⊗		O	X	X
17	X		O	X	⊗			X	⊗		O	⊗	X
18		⊗	⊗	X	⊗			⊗	⊗		⊗	X	
19		X	X	X	⊗			⊗	X	⊗		X	
20		O	X	O	O			⊗	⊗		X	O	O
21	O	X	X	O	X			X	⊗	X	⊗	O	O
22	O	⊗	⊗					X	X	X	X	⊗	X
23		⊗	⊗	X	X			⊗	⊗			⊗	X
24		X	⊗	O				O		X			O
25		⊗	X		O			X	X	X			O
26	O	⊗		O	⊗			X		⊗		O	O
27		X	X	O	X				X	X	X		

Table 6.65 (2)

```
ACT. ABCDEFGHIJKLM
01    XXOOOO OXX
02   OXXOOOOOO
03    XXXXX⊗XX X
04    X   XX  XO
05    XX⊗  O X
06    ⊗OX  O X X
07    ⊗⊗  XXXO
08   OX OO OOO X
09   O⊗⊗X XX   X
10   O⊗⊗O   OO⊗O
11   O⊗⊗OOO OO X
12   O⊗⊗⊗O  O XX
13   O⊗X  XX   ⊗
14   OXXOO  OO⊗O
15   O⊗XOO    OX
16     X  OXX  ⊗
17    XX X    OX
18    X⊗X     O⊗
19   O OXXO    X
20    XX OXOO ⊗O
21    XXXOO  OOX
22   XX XX   XOX
23    X⊗  OOOOOX
24    ⊗X O    XX
25    ⊗⊗ XOXX X⊗
26   X X⊗XOOO O⊗
27        OOOO ⊗
```

UNIQUE
DOMAIN

```
ACT. ABCDEFGHIJKLM
01   XX  XX  XXX
02    XXO⊗X OX⊗
03   ⊗⊗⊗⊗XX XXXX
04    X⊗X ⊗ OX⊗
05   ⊗⊗⊗ X⊗ ⊗XXX
06   XXX⊗X⊗ X⊗ ⊗
07   OXX ⊗X OO⊗O
08   XXX  ⊗ XXXX
09   OXX  ⊗OOOX
10     XOOXO  ⊗O
11   ⊗⊗X  X X  X
12   ⊗⊗⊗XO⊗    ⊗
13   XXX  ⊗  ⊗XO
14   XXXX  O O⊗O
15    X⊗ OXOOO⊗O
16   X⊗XOO X⊗XOX
17   ⊗XO⊗OO X X
18   ⊗XO⊗OX ⊗⊗ ⊗
19   X⊗⊗XOXO ⊗O⊗
20    XXOOX   XX
21   X⊗OOX⊗ XXO
22   X⊗⊗  XOX XX
23   ⊗X⊗⊗ XOXOOX
24    X OXXOX XX
25   X⊗⊗ XXOO ⊗O
26    XX OXOOOX
27   ⊗⊗⊗⊗X⊗  ⊗X
```

MT. EXPLORATION

```
ACT. ABCDEFGHIJKLM
01   OOXOO OOO ⊗
02     X X ⊗O OX
03    ⊗⊗⊗X  XX ⊗
04    OX XXXXO
05   OX⊗ X⊗XX  X
06    ⊗⊗XO⊗⊗XX X
07     XOX⊗ OO X
08   OX⊗ XXXX O⊗
09   O  OOOOOOXX
10   X   OXO  OX
11   XXXXX  X  ⊗
12   O XXX    XX
13   OO OO O O X
14   OXX X X  O⊗
15    X⊗X X⊗X OX
16   X⊗X⊗X⊗ ⊗XO⊗
17   XXO⊗ ⊗ ⊗ O⊗
18    ⊗X⊗⊗XO⊗OOX
19    ⊗⊗X⊗⊗⊗X  ⊗
20     ⊗X O⊗OOOX
21   X⊗X ⊗XXXX X
22    X⊗XXOXXO X
23    X⊗⊗⊗OXXO ⊗
24   O XX XXX XX
25   OXXOXXOOOXX
26   O X O  O ⊗X
27    ⊗⊗ ⊗     X
```

PREPTON

```
ACT. ABCDEFGHIJKLM
01    ⊗ X    X
02    XX⊗    X
03     OX
04     X⊗
05    OO     ⊗
06    X ⊗
07    ⊗⊗X    ⊗
08    ⊗X
09    XXX    X
10    XX⊗    X
11     XX    ⊗
12    O X    X
13    X ⊗    X
14    ⊗X
15    X⊗     ⊗
16     OX    O
17     O
18     OO
19     O     ⊗
20     XX    ⊗
21    ⊗ ⊗
22    O X    X
23    XOX    ⊗
24    ⊗⊗X    ⊗
25    XX⊗
26    ⊗⊗X    X
27    X ⊗    ⊗
```

```
ACT. ABCDEFGHIJKLM
01             ⊗
02            O⊗
03            O⊗
04             ⊗
05            XX
06            ⊗⊗
07            X
08            O⊗
09            XX
10            X
11             X
12            ⊗⊗
13            XX
14            XX
15            XX
16            X⊗
17            ⊗X
18             X
19             ⊗
20            O
21            XX
22            ⊗X
23            ⊗
24            XX
25            ⊗X
26             X
27             ⊗
```

```
ACT. ABCDEFGHIJKLM
01       O
02       O
03   X      ⊗⊗
04   O   O  OX
05   X      ⊗X
06       O  X⊗
07   X   O
08   O   O  XX
09          X⊗
10       O  XX
11   ⊗      XX
12          XX
13   X      O
14   ⊗      ⊗⊗
15   ⊗      X
16   X   X  ⊗⊗
17   X   ⊗  ⊗⊗
18   ⊗   X  ⊗⊗
19   ⊗   ⊗  ⊗⊗
20   X   X  ⊗X
21   ⊗   O
22   X      XX
23   X       X
24   ⊗   X   ⊗
25   ⊗   X
26   X       X
27   X       ⊗
```

```
ACT.  ABCDEFGHIJKLM
 01   O XXXOXOO ⊗XX
 02    XX   ⊗⊗O XX⊗
 03   X⊗ XXXXXXX X
 04    X XO ⊗XO⊗ XO
 05    ⊗XXOXX⊗X  XO
 06    ⊗X⊗X⊗⊗⊗XXOX
 07     ⊗XOOXXOXX⊗X
 08    XX⊗XX XO ⊗ ⊗
 09   O XX  X XOXX
 10   OX⊗XOO⊗ OO⊗⊗X
 11   O ⊗⊗ XX O⊗⊗⊗
 12   OX⊗O X⊗X X  X
 13    X⊗   X  OX O
 14   X⊗X⊗X XXX ⊗⊗X
 15   OXX  X⊗⊗OOXXX
 16   ⊗⊗X⊗⊗⊗⊗⊗XO⊗⊗X
 17   X⊗X⊗⊗⊗⊗⊗⊗XO⊗⊗
 18   ⊗⊗X⊗⊗XX⊗⊗OX⊗⊗
 19   X⊗X X⊗X⊗  X⊗X
 20   XX XOX⊗X   ⊗
 21   O X OX   O⊗
 22    X⊗O    X   O
 23    ⊗⊗ OOOXO X X
 24   XXX XOXX  ⊗⊗X
 25    X⊗OOOX⊗  XX
 26    X⊗ OOX⊗O X O
 27   O⊗⊗XX  XX XX
```

CAREER CITY

overall examination of the relationship between process and "Occupational Self-Awareness" in these Opportunity City data would indicate that this relationship was predominantly negative. The rows as well as the columns of these grids can be inspected. For instance, activity 6 (study interests needed) had a positive relationship with virtually all the learner outcomes for the eighth graders at Fallstaff. The same could also be said for activities 18 (race/sex stereotyping) and 24 (aptitude tests). The reader is invited to inspect these tables and see how much the nature of the process-outcome relationships can vary from project to project. For purposes of summation, however, as well as to help identify the consistent activityoutcome relationships, Tables 6.66, 6.67 and 6.68 have been prepared. In these tables, each cell contains the proportion of positive correlations observed between the activity and the construct across all the projects for that grade. Missing observations are not included in the proportion. A proportion of .5 represents an even split, while proportions close to zero represent a consistently negative relationship, and proportions close to one represent a consistently positive one. One inference that can be drawn from these tables is the identification of the key activities associated with certain constructs. For instance, if one of the project goals was to increase "Career Awareness" among eleventh graders, emphasis of activities 3 (talk with students), 16 (listen to my parents), and 18 (reduce race/sex stereotyping) would be in order, as would a deemphasis on

Table 6.66

Summary of Project Level Process-Outcome Relationships
Grade 5

	Occupational self-awareness	Work values		Attitudes towards work	Knowledge of work values		Job seeking/ job getting	Career awareness	Economic awareness	Academic perceptions	Social/personal perceptions	Reading achievement	Math achievement	
Act.	A	B	C	D	E	F	G	H	I	J	K	L	M	AVG.
1	.50	.55		.60	.36		.33	.09	.55	.85	.46	.38	.38	.46
2	.50	.55		.10	.45		.11	.09	.18	.46	.77	.50	.25	.36
3	.50	.73		.60	.55		.67	.64	.64	.77	.77	.38	.50	.61
4	.60	.64		.60	.55		.56	.36	.64	.54	.38	.25	.25	.49
5	.80	.73		.60	.45		.67	.55	.73	.62	.69	.25	.12	.56
6	.70	.64		.50	.55		.44	.27	.45	.54	.54	.75	.75	.31
7	.50	.45		.60	.45		.33	.27	.27	.54	.62	.38	.12	.41
8	.50	.45		.40	.36		.56	.27	.64	.62	.77	.38	.25	.47
9	.30	.55		.40	.36		.11	.09	.45	.46	.62	.25	.25	.35
10	.30	.18		.40	.36		.22	.09	.36	.54	.54	.12	.25	.31
11	.60	.64		.70	.45		.44	.27	.45	.69	.54	.38	.62	.53
12	.50	.55		.40	.55		.22	.18	.27	.77	.62	.12	.25	.40
13	.20	.45		.40	.36		.33	.18	.27	.31	.38	.50	.50	.35
14	.40	.36		.20	.36		.22	.18	.27	.38	.62	.38	.25	.32
15	.30	.64		.40	.18		.33	0	.36	.54	.46	.12	.25	.33
16	.90	.91		.80	.73		.56	.64	.73	.62	.85	.38	.75	.72
17	.80	.91		.70	.73		.44	.73	.73	.69	.69	.38	.50	.66
18	.60	.55		.40	.64		.67	.82	.82	.62	.69	.62	.50	.63
19	.90	.73		.40	.45		.22	.27	.64	.62	.69	.25	.12	.48
20	.40	.55		.20	.27		.22	.18	.36	.38	.38	.25	.38	.32
AVG.	.54	.59		.47	.46		.36	.31	.49	.58	.60	.35	.36	

Table 6.67
Summary of Project Level Process-Outcome Relationships
Grade 8

	Occupational self-awareness	Work values	Interest in career preparation	Attitudes towards work	Knowledge of work values	Decision making	Job seeking/ job getting	Career awareness	Economic awareness	Academic perceptions	Social/personal perceptions	Reading achievement	Math achievement	
Act.	A	B	C	D	E	F	G	H	I	J	K	L	M	AVG.
1	.60	.56	.89	.29	.50	.50	.29	.33	.50	.50	.60	.43	.57	.51
2	.20	.22	.89	.43	.38	0	.14	.11	.10	.50	.60	.29	.29	.32
3	.80	.67	.89	.29	.63	.75	1.00	.67	1.00	.50	.70	.43	.29	.66
4	.20	.44	.78	.57	.13	.13	.29	.33	.20	.40	.40	.29	0	.32
5	.50	.56	.78	.57	.63	.50	.43	.22	.90	.20	.30	.43	.43	.50
6	1.00	.78	.89	.86	.63	.63	.57	.67	.60	.20	.90	.57	.57	.68
7	.40	.56	.89	.14	.13	.25	.29	.22	0	.40	.50	.29	0	.31
8	.50	.78	.89	.71	.38	.50	.43	.33	.50	.20	.70	.71	.43	.54
9	.20	.44	.67	.14	.38	.13	.14	0	.60	.20	.80	.29	.14	.32
10	.40	.78	1.00	.43	.25	.38	.57	.33	.30	.70	.70	.57	.57	.54
11	.80	.89	.67	.71	.63	.63	.14	.44	.50	.30	.90	.71	.43	.60
12	.50	.78	.89	.14	.75	0	.43	.22	.40	.60	.60	.29	0	.43
13	.30	.44	1.00	.14	.50	.38	.14	.22	.30	.40	.60	.43	.14	.38
14	.70	.56	.78	.57	.50	.50	.29	.33	.60	.30	.90	.43	.14	.51
15	.40	.56	1.00	.29	.25	.38	.14	.11	.40	.30	.70	.43	.14	.39
16	.70	.78	.67	.57	.63	.63	.71	.78	.50	.40	.70	.86	.86	.68
17	1.00	.89	.78	1.00	.75	.88	1.00	1.00	.60	0	.90	.86	.86	.81
18	.90	.89	.78	.71	.88	.88	1.00	1.00	1.00	.50	1.00	1.00	1.00	.89
19	.60	1.00	.89	.86	.63	.63	.86	.44	.70	.10	.80	.71	.57	.68
20	.50	.67	.89	.29	.38	.25	.57	.44	.80	.50	.40	.43	.29	.49
21	.80	.78	1.00	.43	.63	.38	.14	.33	.60	.30	.50	.29	.14	.49
22	.80	.78	1.00	.57	.50	.50	.29	.22	.30	.30	.60	.43	.14	.49
23	.78	.78	1.00	.29	.63	.25	.43	.22	.50	.30	.60	.29	.29	.48
24	.50	.67	.89	.57	.75	.25	.57	.33	.30	.40	.50	.57	.29	.51
25	.10	.33	1.00	0	.13	.25	.14	.22	.20	.60	.40	.29	.14	.29
26	.60	.56	.78	.57	.50	.38	.57	.22	.30	.30	.60	.29	.29	.46
27	.80	.78	.89	.57	.50	.50	.29	.67	.70	.30	.70	.43	.57	.59
AVG.	.57	.66	.87	.47	.50	.42	.44	.39	.50	.36	.65	.48	.35	

Summary of Project Level Process-Outcome Relationships
Grade 11

	Occupational self-awareness	Work values	Interest in career preparation	Attitudes towards work	Knowledge of work values	Decision making	Job seeking/job getting	Career awareness	Economic awareness	Academic perceptions	Social/personal perceptions	Reading achievement	Math achievement	
ACT.	A	B	C	D	E	F	G	H	I	J	K	L	M	AVG.
1	.50	.67	.67	.44	.44	.20	.17	.22	.58	.36	.82	.67	.67	.49
2	.25	.78	.78	.33	.44	.40	.33	.33	.33	.45	.64	1.00	.33	.49
3	.88	.89	.78	.78	.78	.80	.50	.89	.75	.27	.82	.67	.33	.70
4	.25	.44	.78	.44	.11	.80	.50	.33	.33	.64	.36	.67	.33	.46
5	.63	.89	.89	.44	.33	.80	.33	.78	.75	.55	.36	.33	0	.54
6	.50	.89	.78	.78	.67	1.00	.67	.67	.67	.36	.82	.67	0	.65
7	.25	.67	1.00	.22	.44	.80	.33	.33	.42	.64	.45	.33	.33	.48
8	.38	1.00	.89	.33	.56	.80	.33	.67	.58	.27	.91	.33	.67	.59
9	.13	.33	.78	.44	.11	.40	.33	.11	.50	.55	.73	.33	0	.36
10	.38	.33	.89	.44	.33	.60	.17	.33	.33	.64	.45	.33	.33	.43
11	.63	.78	.78	.67	.44	.60	.50	.44	.42	.27	.91	.67	.67	.60
12	.50	.67	.89	.89	.33	.60	.33	.33	.50	.64	.64	0	.67	.[illegible]4
13	.38	.78	.67	.22	.11	.60	.33	.22	.50	.55	.55	0	0	.38
14	.50	1.00	.89	.56	.44	0	.50	.44	.50	.55	.73	.33	.33	.52
15	.25	.89	.89	. 3	.22	.60	.50	.56	.42	.45	.82	.67	.33	.53
16	.88	.67	.78	.78	.56	.60	.67	1.00	.83	.18	.73	1.00	1.00	.74
17	1.00	.67	.78	.56	.67	.40	.17	.78	.67	.36	.64	1.00	.67	.64
18	.75	.78	.78	.89	.67	1.00	.67	.89	.67	.18	1.00	.67	.33	.71
19	.75	.78	.78	.78	.89	1.00	.67	.67	.75	.18	.8	.67	.67	.72
20	.50	.33	.78	.56	.22	.80	.50	.44	.58	.27	.64	.33	.33	.48
21	.63	.89	.89	.56	.56	1.00	.17	.56	.50	.36	.82	0	0	.53
22	.75	.78	.78	.56	.44	.20	.50	.67	.67	.55	.73	.33	.33	.56
23	.63	1.00	.89	.67	.34	.40	.17	.67	.75	.27	.73	.33	.67	.57
24	.63	.89	.78	.44	.44	.80	.50	.56	.50	.73	.64	.33	.33	.58
25	.63	1.00	1.00	.44	.56	.40	.50	.56	.33	.64	.73	.67	0	.57
26	.50	.67	.78	.33	.33	.40	.33	.44	.50	.55	.55	0	0	.41
27	.63	.78	.78	.67	.67	.60	.17	.33	.75	.36	.91	.33	0	.54
AVG.	.54	.75	.82	.54	.45	.61	.40	.53	.56	.44	.70	.47	.35	

activities 1 (use media), 9 (simulation), and 13 (listen to other parents). Again the reader is invited to inspect these tables for whatever relationships may be of interest.

To provide further simplification, row and column means have also been provided. Let us consider the column means first. The cognitive constructs tend to have less positive activityoutcome relationships than the affective constructs across all three grades. Of the two SOS-based constructs, "Social/Personal Perceptions" is more positively related to process than is "Academic Perceptions" across all three grades. The relationship between process and achievement tends to be low across all three grades. Rarely, however, do any of these proportions fall below forty percent. It might also be noted that the process-outcome relationships tend to become more positive as grade level increases.

Let us now consider the row means. Here we are endeavoring to identify those activities that consistently possess strong positive relationships with the outcomes. Using this approach, it is possible to identify several such activities whose relationship with the outcomes is also uniform across grades. These include: 3 (talk with students), 6 (study interests needed), 11 (basic skills and careers), 16 (listen to my parents), 17 (ask parents about jobs), 18 (reduce race/sex stereotyping), and 19 (my work values). Presumably this list represents those activities which should at least be considered for inclusion for implementation in a career education project.

Ethnicity Aggregation

For the ethnicity aggregations achievement test data were not used. Since these aggregations would span projects, and therefore instruments, the inappropriateness of combining achievement test results necessitated their exclusion. Process-outcome grids are presented in Table 6.69 for each ethnic grouping at each grade level. For purpose of simplification, the total number of positive correlations (i.e., X's) in each row and column appears in the margins of the grids. Comparison of the black versus white grids at each grade level indicated that the total number of positive correlations was about the same for both groups at the fifth grade, the number for whites at the eighth grade was somewhat higher, and at the eleventh grade, were substantially higher for whites. Within each grade the pattern of correlations also varies considerably. At the fifth and eleventh grades, whites have many more positive correlations with the construct "Occupational Self-Awareness," while for both eighth grade groups, the results for this construct are virtually identical. For blacks, on the other hand, every activity was positively related to "Social/Personal Perceptions," while two-thirds of the activities were positively related for whites. Most of the activities identified above as possessing strong correlations with the outcomes across grades also evidenced these strong correlations across the ethnic groups.

Table 6.69 ETHNIC-LEVEL PROCESS-OUTCOME RELATIONSHIPS

Grade 5 - White

ACT.	A	B	C	D	E	F	G	H	I	J	K	
01	0			■			X	0	X	■	X	5
02	X	X		0	X		0	0	0	X	■	5
03	■	■		■	X		■	X	0	■	X	8
04	X	■		■	■			X	■			6
05	■	■		■	X		X	X		■	■	8
06	X	■		X	X			X		■	X	7
07		X		X	0		0			■	X	4
08				X			■	0	X	■	X	5
09		X		0	0		0			0	0	1
10	0	0					0			X	X	2
11	■	■		X	0					■	■	5
12		X		0	X		0		0	X	X	4
13		■		0	0		0	0	0	X	X	3
14	X							0	0			1
15	0	X		0	0		0	0	0	0	0	1
16	■	■		■	■		X	■	■	■	■	9
17	■	■		X	■			■	X	X	■	8
18	■	■		X	■		X	■	■		■	8
19	■	X		X			X		X	X	■	7
20		X			0		0	0	0	0	0	1
	10	17		12	9		7	7	7	14	15	98

Grade 8 - White

ACT.	A	B	C	D	E	F	G	H	I	J	K	
01	X		X	■		0	0		X	0	X	5
02	0		X	0	X	0		0		0	0	2
03	X	■	■	X	■	X	■		■	0	X	9
04		X	X		0	0		0	0			2
05	■	X	X	X	X		X		X	X		8
06	■	■	■	■	X	X	X	X	■	0	■	10
07		X	X	0	0		X		0	X		4
08	X	X	■		X				X	■		6
09	0	X	■	0		0		0				2
10		X	X			0	■				X	4
11	X	■	X	X	■	X	X			0	■	8
12		■	X	0	■	0	X	0		X		5
13	0	X	X	0	0	0		0		X	0	3
14	X	X	X	X	X	X	X		■		X	9
15		X	■		0		0	0			X	3
16	■	X	X	X	X	X	■	X	■	0	■	10
17	■	X	X	■	X	X	■	X	■	0	■	10
18	■	■	X	■	■	■	■	X	■	0	X	10
19	■	■	■	■	■	X	■		■		X	9
20	X	X	X				X	0				4
21	X	X	X		X	0	X		X		X	7
22	X	■	■				X	0			X	5
23		■	■		X		X	0		0	■	5
24	X	■	X				■		X		X	6
25	0		X	0	0	0		0	0		X	2
26		X	X	X							X	4
27	X	■	■		X		X		X		X	7
	16	25	27	10	15	8	18	4	13	4	19	139

Grade 11 - White

ACT.	A	B	C	D	E	F	G	H	I	J	K	
01		X	X	X			0		0		■	4
02	X	X	X	X	0	X	X				X	7
03	■	■	■	■	X	■	X	■	X	0	■	10
04		X	X	X	0	X			0	X		5
05	■	■	■	X		■		X	X	X	X	9
06	■	■	■	■	X	■	X	■	■		■	10
07		X	X			X	0	0	0	X		4
08	X	X	X	■	■	■		X			■	8
09	0		X		0	X	0	0	0	■		3
10			X	X	0		0				X	3
11	■	X	X	X		■	X	X	X	0	■	9
12		X	X	X	0	■				X	X	6
13		X	X		0	X	0	0		X		4
14	X	X	X	X	X						X	6
15	X	X	■	X		X	X	X		X	X	9
16	■	■	X	■	■	■	■	■	■	0	■	10
17	■	■	X	■	■	X	■	■	■	0	■	10
18	■	■	X	■	X	■	■	■	■	0	■	10
19	■	■	■	■	■	■	X	■	■	0	■	10
20		X	X	X		■	X				X	6
21	X	■	■	X	X	■				0	X	7
22	■	■	■	■	X	X		X	X	X	X	10
23	X	X	■	■		X		X	X		X	8
24	X	X	X		X			X		■	X	7
25		X	X		X		0		0	X		4
26		X	X				0			■		3
27	X	■	■	■	X	X			■		■	8
	17	25	27	21	13	21	10	13	11	12	20	190

Grade 5 - Black

ACT.	A	B	C	D	E	F	G	H	I	J	K	
01	0				0		0		0	X	X	2
02		0		0	0		0	0			X	1
03	0	X		X	X		■				■	5
04				0			X	0		0	X	2
05	■	■			X		■	X	■	■	X	8
06	X	■		0	X		X	■	■	X	■	8
07		0		0	X		■			0	X	3
08	X			0			X		X	0	■	4
09				0	X		X	0	■	0	X	4
10	0	0		0	0		X	0	0	■	X	3
11	■	■		X	■		X	X	■		■	8
12	0				0		■	0			■	2
13				X			X		X	0	X	4
14	0			X	X		0	0	0	0	X	3
15		0					■	0	X	X	■	4
16	■	■		X	■			X	■	X	■	8
17	X	■		■	■		■		■	X	■	9
18	0	X		X	■		X	■	■	0	X	7
19	X	■		0	■		X	X	X	■	■	8
20	0			0	0		0	0			■	1
	7	8		7	11		16	6	11	8	20	94

Grade 8 - Black

ACT.	A	B	C	D	E	F	G	H	I	J	K	
01	X	X	X	■	■	X		X	0	■	X	9
02	0		X	X		0			0	X		3
03	X		X	X	0	X			X	X		6
04		0	X	X		0	0	X	0	■	■	5
05	0	0	X		0	X	X				X	4
06	X		X	X		X	0		X		X	6
07	0		X	X	0			0				2
08	X		■	■	X	X	0			0	0	5
09	X		■	X	0	0	0	0			X	4
10			■	X		0				■	X	4
11	X	X			X		0	X	X	■	■	7
12	X	0	■		X	0		■	0		■	5
13		0	■	■	X		0	0		■	X	5
14	X	0	X	X	X	0				X	X	6
15	X		■	■	0			0	0	X	■	5
16	■	X	X		X	X					■	6
17	■	X			X	X			0	0	■	5
18	■	■	X	■	■	■	■	■		X	X	10
19	■	X	■	■	X	■	X	X	X	0	■	10
20		0	■	X	0	0	X	0	0	■	0	4
21	X	X	X	■			0	■			X	6
22	X	X	X	X	0		0		0	X	X	6
23	■	X	■	X	X			X	X			7
24		0	X	■	X		X					4
25		0	■	■	0	0			0		X	3
26	0	0	X	X	X		0	0	0	X	X	5
27	■		X	■		X	X	■		■	0	7
	17	9	25	22	13	10	6	9	5	14	19	149

Grade 11 - Black

ACT.	A	B	C	D	E	F	G	H	I	J	K	
01	0		X					0	X		■	3
02	0		X		0	0			0	0	■	2
03		■	■		X		X				■	5
04	0	0	X		0		X	0	0	X		3
05		■	■		0			X		X		4
06		■	■		X	X	X	X			X	7
07	0	X	X	0	X	X		0		X	0	5
08	0	X	■		0		0				■	3
09	0	X	X	0	0	0	0	0	0	0	X	3
10			X	0			0	0		X		2
11	0		X		0	0		0	0	X	■	[illegible]
12		X	X				0		0		■	3
13		X	X	0		X	0	X		0	X	5
14	0	X	■		0	0				X		3
15	0	X	■	0		0	0		0	0	X	3
16	X	■	X	■		X	X	■	■	0	X	9
17		X	■	X		0	0	X	X	0	X	6
18		X	■	X		X	X	■	X	0	X	8
19		■	X	■		X	X	■	X	0	X	8
20		X	X	X	0	0	X	X	X		■	7
21		X	X	X	0	0		X		X		5
22		X	X				X	X	X		■	6
23	X	■	■	X	X		■	■	X	0	■	9
24		■	■	■		0	■	■		0	X	6
25		■	X	■	X		0	X	0	X	X	7
26		X	X	■					0		X	4
27		■	■	X		0	X		0		■	5
	2	22	27	11	5	6	11	13	8	8	21	134

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Summary

In this section, analysis of target student data using the process model at project or ethnic aggregations yielded two primary conclusions:

- certain activities possess high correlations with outcome measures across all project and ethnic groupings.
- the pattern of correlations across project and ethnic groupings can vary substantially; the scope of this study was not sufficiently broad, however, for us to begin to identify the determinants of such variation.

Thus, while the process model would appear to be the procedure of choice for evaluating career education projects, considerable care must be taken in its application. While the impact of certain activities on outcomes seem to be unaffected by changes in grouping, nonetheless, the activities are in the minority. Substantial differences exist between projects and ethnic groups regarding the nature of the process-outcome relationships. In the absence of any additional information at this time that would serve to explain and/or predict the occurrence of these variations, the practitioner would be well advised to develop process models on groups that are as homogeneous as possible. While the extent to which the project participants can be subdivided into homogeneous groups is certainly limited by administrative necessities, a few gross groupings based on ethnicity and general background would be well recommended.

GLOSSARY

Canonical Redundancy Analysis (CRA) - The extension of multiple regression analysis, when the criterion is multivariate.

CIPP Model - a model developed by Stufflebeam and others which leads to an examination of the context, input, process, and product in an evaluation and which leads to a broadly focused evaluation.

Comparison Group Model - presumes that "treatment" is discrete, i.e., that career education, per se, is a distinct educational methodology.

Construct Definition - A procedure (or set of procedures) combining extrinsic definition and intrinsic definition to delimit, validate, and label a set of constructs.

Constructs - hypotheses concerning the nature of organizing influences of observed patterns.

Determinants - facilitating or impeding forces.

Determinants of Implementation - A set of fourteen generic and career education-specific contextual variables which shape and limit the quality of career education implementation. Examples of these determinants include saturation of the adopting organization, time for planning and orientation, organization capacity and history of innovation, adoption strategies, and incentives and disincentives for adoption.

"Early Adoption" - refers to institutions which have readily accepted career education concepts into their programs.

Exposure to Career Education - The extent to which the individual student participates in career education-specific activities and is presented with career education-specific concepts. Exposure is a function of the quality of implementation and opportunity to learn.

Extrinsic Definition - procedures, such as determining the face content, for labeling a set of items according to their common content.

Factor Analysis - a process for examining a matrix and expressing the correlations of each variable with every other variable.

Fidelity Perspective - refers to an attempt to assess the discrepancy between a project and nonproject achievement level in implementation.

Implementation/Process Model - A conceptual framework which posits a set of determinants of implementation which effects the quality of implementation (a function of five process dimensions). The quality of implementation interacts with opportunity to learn to produce student exposure to career education. Exposure, coupled with pretest, determines posttest scores.

Intrinsic Definition - procedures, such as factor analysis, used to determine the common content of responses to sets of items. Used in this study to delimit constructs among the student learner outcome and practitioner value internalization items.

Invariance - structural stability of statistical solutions.

Joint Effects Model - combines the comparison and process models into one analysis to allow determination of the unique effects of treatment group and exposure as well as the common effect from both.

LEA - local education agency.

Learner Outcomes - Desired product objectives for students. Three sets of learner outcomes are considered in this study: (1) the nine OE learner outcomes current at the initiation of this study; (2) a list of nine learner outcomes developed by NTS adapted from the OCE list designed to be more readily operationalized; and (3) a set of thirteen learner outcome constructs developed by NTS through construct definition procedures from the pretest results of the outcome instrumentation.

"Mapping" - The process of breaking down evaluation questions into data elements and data sources.

"Matched" Student Samples - Samples of groups of students for whom parallel test data were available from both pre- and posttesting and from process testing.

MRC - Multiple regression/correlation analysis.

"Mutual Adaptation" Perspective - an assessment viewpoint that recognizes the evolving character of career education and the multiplicity of evaluative concepts that may be used to judge its achievements.

(NM5001 to NM5008) - The New Mexico Career Education Test Series.

NTS - NTS Research Corporation.

OCE - Office of Career Education.

Ohio 6, 8, and 10 - The Ohio Career Development Test Series.

OMB - Office of Management and Budget.

Opportunity to Learn - A complex of factors including motivation, attendance, and attitude toward school which, in combination with the quality of implementation, determines student exposure to career education. This component of the Implementation/Process Model was not addressed directly in this evaluation, but was approximated by pretest scores.

PECE - The Program of Exploration in Career Education Knowledge Test.

Power Analysis - seeks to control the error rate of failing to detect a treatment effect by determining sample sizes needed to reach statistical significance.

Process Dimensions - A set of five resultants of the determinants of implementation which describe the quality of implementation. The five dimensions include: (1) changes in tangible resources, (2) changes in intangible resources, (3) changes in implementation knowledge and understanding, (4) changes in implementor role/behavior, and (5) changes in implementor value internalization.

Process Model - presumes that "treatment" is a continuum and that students vary in exposure to career education concepts and activities.

PSI - "Process Specification Index" - the ratio of the unique effect on the criterion of treatment to the unique effect of treatment plus the common effect due to process and treatment group.

Quality of Implementation - the level of implementation of an innovation, described by the five process dimensions.

Regression/Commonality Analysis - procedure which partitions the variance in a criterion that is predictable from two or more sets of predictor variables into the proportion that can be uniquely associated with each predictor set, and the proportion that is in common with two or more other predictor sets.

SEA - State Education Agency.

SOS - The Self-Observation Scales.

Type I Error - concluding that there is an effect when there is none.

Type II Error - concluding that there is no effect when there is one.

"Uniquenesses" - first order commonality coefficients.

USOE - United States Office of Education.

Value Internalization - implementor commitment and attitudes toward an innovation.

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TECHNICAL ASSISTANCE IN EVALUATING CAREER EDUCATION PROJECTS

Contract 300760312

FINAL REPORT

VOLUME II

APPENDIX TO THE FINAL CAREER EDUCATION EVALUATION REPORT

Submitted to:

DHEW/US Office of Education
Office of Career Education

NTS RESEARCH CORPORATION

PREFACE

This report has been prepared pursuant to the requirements of DHEW/USOE Contract Number 300760312, *Technical Assistance in Evaluating Career Education Projects*, for the Office of Career Education. This contract was awarded to National Testing Service, Inc., (NTS) on June 21, 1976, to accomplish the following two objectives:

1. To improve the quality of evaluations conducted by OCE-funded career education projects through the provision of technical assistance to fifteen of these projects.
2. To identify, as a result of this technical assistance effort, a field tested model which could be used by other career education projects funded by OCE in future evaluation efforts.

Contractors are encouraged to provide objective, independent evaluations; therefore, none of the results or positions presented in this report necessarily reflect official Office of Career Education policy.

This is the Appendix to VolumeII of the five volumes making up the common Career Education Evaluation Final Report. The volumes include the following:

Volume I: Summary Volume. This volume contains highlights of the study design and results.

Volume II: The Career Education Evaluation Final Report. This, the main body of the report, contains detailed information about the background of the evaluation, the evaluation design, and the results of the evaluation. Three appendices are included, as well: (1) summaries of the fifteen local evaluations; (2) a summary of the technical assistance provided by NTS; and (3) all instruments used in the study.

Volume III: The Career Education Instrumentation Substudy. This volume contains the rationale, procedures, and results of the outcome and process instrument validation and construct definition activities undertaken by NTS under this contract.

Volume IV: Turnkey Manual for Evaluating Local Career Education Projects. The Turnkey Manual was prepared for distribution to participating projects and contains the necessary information for longitudinal continuation of this evaluation at the project level.

Volume V: The Career Choice Substudy. This volume contains the design and results of a study of the relationships of career education to secondary students' career choices.

In addition to these five common report volumes, NTS prepared unique local evaluation reports for each of the fifteen participating projects.

APPENDIX

Three appendices are included in this companion to Volume II of the Final Career Education Evaluation Report. Appendix A contains a narrative summary of the technical assistance provided to the fifteen local projects included in this study. Appendix B contains all the instrumentation used in this study; the appendix is organized into three sections corresponding to the major components of the evaluation: Determinants of Implementation, Implementation/Process, and Student Learner Outcomes. Included in Appendix C are the pre- and posttest means and standard deviations on the learner outcome constructs and the results of the application of the "Process Model" (see Chapter 2, Volume II) to ethnic groups, aggregated at the overall level, and each local project. These tables are organized by grade level, with grade five presented first.

APPENDIX A

TECHNICAL ASSISTANCE SUMMARY

APPENDIX A

TECHNICAL ASSISTANCE SUMMARY

There were two major interrelated objectives for this contract:

1. To improve the quality of evaluations conducted by OCE-funded career education projects through the provision of intensive technical assistance to fifteen of these projects; and
2. To identify, as a result of this technical assistance effort, a field tested model, which could be used by other career education projects funded by OCE in the future.

Even though NTS and OCE staff agreed that most emphasis should be placed on the second objective, the first was not ignored. During the course of this contract, five major activities were undertaken to provide technical assistance. These activities included: (1) the preparation of an extensive Turnkey Manual to assist the projects in implementing the evaluation design on a longitudinal basis; (2) the completion of the Instrumentation Substudy to provide projects with a validated set of instruments or items for measuring student outcomes and professional staff opinions; (3) training local staff in the rationale and use of the information-based evaluation (IBE) model; (4) training local staff and practitioners in test administration procedures; and (5) consultation on evaluation, project management, and reporting. These five activities are summarized in this appendix.

Turnkey Manual

The Turnkey Manual for Evaluating Local Career Education Projects (Volume IV of this report) was developed specifically to be of primary value to local career education project directors and their staffs. The Manual was designed neither as a primer for career education evaluation nor as a general model for evaluation design; rather, it was tailored to allow the fifteen participating projects to carry out the design used in this study on a longitudinal basis and to make modifications as necessary to fit their own particular evaluation needs. The Manual was written for those with limited backgrounds in evaluation methodology and statistics, although attempts were made at explaining key problems and approaches at the "intuitive" level.

The Manual's approach was based on the IBE model (Stenner, 1973). An introduction to the model and to the procedures for using it were included. Most emphasis, however, was placed on the full development of evaluation designs in a logical, linear fashion from the review of programmatic design and objectives to the preparation of the design document. Topics given emphasis included the following:

- Reviewing program design, objectives, and rationale.
- Specifying information requirements and management needs.
- Identifying conceptual framework for evaluation.
- Specifying evaluation questions of interest.
- Selecting or developing instrumentation.
- Specifying sample selection procedures.
- Specifying data analysis techniques.
- Specifying data collection and reduction procedures.
- Specifying reporting requirements and procedures.
- Identifying major assumptions and restraints.
- Defining support requirements.
- Developing the schedule of evaluation activities.
- Listing budget requirements.
- Developing the management plan.
- Preparing the evaluation design document.

In addition, we included a detailed checklist to assist local staff in monitoring the completion of the evaluation design activities. The Manual was disseminated to the fifteen participating projects on July 15, 1977.

Instrumentation Substudy

As was pointed out in Chapter 2 of this volume and in Chapter 3 of the Career Education Instrumentation Substudy (Volume III), career education evaluation has been hindered by the lack of validated instruments which specifically address OCE's career education learner outcomes and are useful across grade levels. As part of this contract, NTS reviewed twenty-seven instruments in order to select the ones that seemed most likely to match the learner outcomes and on which at least some previous validation work had been done. The results of that selection process, summarized in Volume III, were disappointing. In order to rectify this problem, NTS subjected all the selected outcome measures to rigorous validation and construct definition procedures.

Even though the results of the substudy showed that few of the instruments could be used alone, items in some instruments do provide reasonably good measures of some of the outcomes. Further, and probably more importantly, local projects can now know more about the basic properties of the reviewed instruments and, therefore, need not act in the dark or on the claims of publishers in the instrument selection process.

It should be noted that NTS also has provided each participating project with copies of all instruments specifically developed for its own testing purposes. Each project thus has a tested set of process instruments for its use. The opinion instrument, designed for administration to teachers, counselors, and principals, was subjected to the same construct definition and validation procedures used with the outcome instruments.

Training in Information-Based Evaluation

Two training sessions were held with the staff of each project in the rationale and use of the IBE model. The first session took place at NTS and included directors from all projects; the second occurred on-site and included a wide variety of participants in addition to project staff. These sessions actually served a dual purpose. In addition to their training function, the sessions provided NTS staff with the necessary information to carry out this study. In effect, these sessions provided local participants an experiential learning environment in which their information needs and evaluation questions acted to focus the training process.

The main focus of both sessions was the delineation of evaluation questions. The general session addressed common concerns; the local sessions explored unique questions. Since the heart of the IBE model is the determination of the information needs of project staff and relevant decision-makers, the sessions provided the necessary baseline for participants. Other aspects of evaluation design seemed more appropriately placed in the Turnkey Manual.

Each project also was provided appropriate design materials for self-evaluation as well as a complete copy of the Evaluation Design Document prepared by NTS for the common study.

Test Administration Training

Two separate training sessions took place at each project: the first was to train administrators in general testing techniques and specific procedures for learner outcome testing; the second was concerned with procedures for collecting process data from the respondent groups.

Topics covered in these training sessions included the following:

- Background information
  - Overview of the study
  - Areas of assessment
- Ethics of research
  - Confidentiality
  - Anonymity
  - Faithful reporting
- Field preparation
  - Positive attitudes
  - Settings
  - Standardization
  - Scheduling
  - Testing etiquette
- Administration
  - Introduction
  - Potential problems
  - Instrument attainment
  - Instrument security
  - Instrument handling and packaging
- Use of the Instrument Administrator's Manual
  - General activites
  - Review of particular instruments

In addition to these training sessions, each project was also supplied with a sufficient number of two separate Instrument Administrator's Manuals, one for use with the outcome instruments and for the process instruments. These manuals are now the property of the projects.

Consultation

This, the last of the activities, is the most difficult to fully document because most was done informally, either by phone, during one of the three visits to each project, or at the common design conference. The following are, therefore, only some of the consulting activities NTS carried out. Evaluation assistance included resolving local sampling problems and the use of comparison groups, matching instruments with particular local objectives, analyzing the relationships between processes and outcomes, and helping develop local instruments, particularly for evaluating staff development.

A number of projects asked for and received assistance in preparing their mid-year reports and other project reports. Although this was usually done quite informally, in a few cases aid included reading preliminary drafts and suggesting modifications when it was necessary. In addition to reviewing such documents, NTS staff also reviewed training films and other materials for some projects.

A third set of consulting activities involved linking particular project personnel with staff members in other projects (both participating and nonparticipating), who were attempting similar tasks or who had faced and solved similar problems. In a related vein, two members of the NTS staff attended the Commissioner's National Conference on Career Education to, in part, facilitate interaction among the participating projects.

APPENDIX B

INSTRUMENTATION

APPENDIX B

INSTRUMENTATION

We have included all instruments used in this evaluation within this appendix except the achievement tests used by the individual projects. In order to facilitate understanding of the role served by each instrument they have been grouped into three sets corresponding to the primary emphases of this report (i.e., project level determinants of implementation, implementation/process, and outcome). Each set of instruments is preceded by a table (or tables) describing the instruments in the set, describing the respondent group(s) accessed, the number of items, the type of items, the publisher, if appropriate, and a listing of some typical items.

In addition, the table on the following page describes the data collection and reduction procedures used for each instrument, the date(s) administered, and the approximate sample sizes utilized.

SUMMARY OF DATA COLLECTION AND REDUCTION PROCEDURES

Instrument	Date(s) Administered	Respondent Group	Approximate Sample Size	Data Collection Method	Data Reduction Method
LEA Characteristics Form	Feb-March, 1977	Project Staff	15	Mailed questionnaire with telephone followup	Hand coded and tabulated
Project Characteristics Form	Feb-March, 1977	Project Staff	15	Mailed questionnaire with telephone followup	Hand coded and tabulated
Implementation/Process Observation Form	March-April, 1977 Sept, 1977	Project Staff	15	Semistructured on-site interview, with telephone followup	Hand coded and tabulated
Student Information Form	Spring, 1977	Students	16,000	Group administration by local test administrators; read to grade 5 students	Hand and machine edited; matched with learner outcome files
Counselor Survey Form	Spring, 1977	Counselors	186	Closed choice questionnaire; individual or group administration	Hand and machine edited; opinion items factor analyzed; aggregated to building level; merged with student files
Principal Survey Form	Spring, 1977	Building Administrators	193	Closed choice questionnaire; individual or group administration	Hand and machine edited; opinion items factor analyzed; aggregated to building level; merged with student files
Self Observation Scales	Fall, 1976 Spring, 1977	Students	15,000	Group administration by local test administrators, read to grade 5 students; machine readable forms	Hand and machine edited; first and second order factor analyzed; pre-post and student information form matched
Achievement Tests	Fall, 1976 Spring, 1977	Students	11,000	Procedures normally used in participating projects	Hand edited; machine edited; converted to standardized t scores; pre-post and student information form matched
Program in Exploration of Career Education (PECE)	Fall, 1976 Spring, 1977	Students	14,000	Group administration by local test administrators; read to grade 5 students; machine readable forms	Hand edited, machine edited, and scored; factor analyzed, converted to standardized t scores, pre-post and student information form matched
Ohio Career Development Test Series	Fall, 1976 Spring, 1977	Students	13,000	Group administration by local test administrators; read to grade 5 students; machine readable forms	Hand edited, machine edited, and scored; factor analyzed, converted to standardized t scores, pre-post and student information form matched
Ohio 6		Grade 5	4,000		
Ohio 8		Grade 8	5,000		
Ohio 11		Grade 11	4,000		
New Mexico Education Test Series:	Fall, 1976 Spring, 1977	Students	13,000	Group administration by local test administrators; read to grade 5 students; machine readable forms	Hand edited, machine edited, and scored; factor analyzed, converted to standardized t scores, pre-post and student information form matched
NM 5001		Grades 5, 8 & 11	13,000		
NM 5002		Grade 11	4,000		
NM 5006		Grades 8 & 11	9,000		
NM 5007		Grade 11	4,000		
NM 5008		Grade 11	4,000		

APPENDIX B.1

PROJECT LEVEL DETERMINANTS OF IMPLEMENTATION INSTRUMENTATION

APPENDIX B.1

PROJECT LEVEL DETERMINANTS OF IMPLEMENTATION

INSTRUMENTATION

This section includes four instruments:

1. *LEA Characteristics Form.*
2. *Project Characteristics Form.*
3. *Implementation/Process Observation Form.*
4. *Community Census Data Checklist.*

The table on the following page provides a brief description of each of these instruments. A more detailed discussion of each can be found in Chapter 2 of this report.

Instruments for Collecting Determinants of Implementation Information

Instrument	Respondent Group	# of Items	Item Type	Typical Item(s)
LEA Characteristics Form	Local Project Staff	45	Open Ended	What has been the average number of new faculty each year over the past five years?
Project Characteristics Form	Local Project Staff	35	Open Ended	Note any significant changes in, or additions to, program objectives over the past several years.
Implementation/ Process Observation Form	Local Project Staff	35	Open Ended	Previous examples of incorporation of large scale innovation within last five years? Time for planning and orientation? What changes in role/ behavior does the project director hope to see?
Community Census Data Checklist	NTS Project Staff	56	Open Ended	Mobility: % population born in state? % 1970 population living in same county in 1965? % workers working in county of residence?

LEA Characteristics Form

Any of the following information would be useful to us in writing a general description of your school system.

I. Administrative organization

A. What is the administrative structure of your system, e.g., unified school district, county system, city system?

If a unified district, please describe.

B. Description of the School Board

1. Number of members? ____________

2. Members elected or appointed? ____________

3. Term of office? ____________

4. Is chairman elected or appointed? ____________

5. Tenure of current chairman? ____________

6. What authority does the school board have over the budget of the school system and the setting of the school tax rate?

C. Superintendent

1. Tenure in system? ____________

2. Elected or appointed? ____________

3. Has the superintendent ever been employed outside of the field of education for a substantial length of time? If so, in what capacity?

II. Local autonomy from SEA

A. Is the base salary of teachers locally or state funded?

B. How autonomous is the LEA regarding curriculum matters, e.g., selection and purchasing of textbooks?

III. Structure and number of schools

A. How many schools in the district?

Elementary _____ Junior/middle _____ Senior high _____

B. Predominant grade structure

____6-3-3 ____6-2-4 ____5-3-4 ____other

C. What is the predominant classroom organization, e.g., traditional self contained units, open classrooms, team teaching, etc.

elementary ______________________________________

junior/middle ______________________________________

senior ______________________________________

IV. Faculty cahracteristics

A. Total number of full-time equivalent teachers ________

B. Total number of counseling staff ________

C. Total number of "District level" administrative staff ________

D. Total number of "Building level" administrative staff ________

E. Breakdown of teaching staff by sex

Number of Faculty by grade

	Male	Female
K.		
1st		
2nd		
3rd		
4th		
5th		
6th		
7th		
8th		
9th		
10th		
11th		
12th		

F. Description of teaching staff in terms of tenure in system

Percent of faculty employed in system:

1. Less than 2 years ________%
2. 2-5 years ________%
3. 6 - 10 years ________%
4. More than 10 years ________%

G. What has been the average number of new faculty each year over the past five years? ________

H. What proportion of the faculty have the following amounts of education?

1. Bachelor's Degree ________%
2. Masters' Degree ________%
3. Specialist Degree ________%
4. Doctorate Degree ________%

I. Is there an active teacher's union in the district?

____

1. What percentage of the faculty are union members?

________%

2. Please provide a brief history of the union.

3. What is the general attitude of the administration toward this union?

4. Does the union bargain in behalf of all faculty?

5. What percentage of the faculty belong to NEA?

________%

J. In general are faculty salaries above, the same as, or below the state average?

K. Have faculty salaries kept up with the increased cost of living? If not, please indicate what percentage increase, on the average, faculty have received.

V. Pupil characteristics

A. Enrollment by grade by sex

	Male	Female
K		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

B. Minority students constitute what percent of the total enrollment? ______________%

C. Number of Title I students in school system

____

D. Number of free lunch or ADC students in school system ______

E. Number of EMR and SLD students ______

F. Number of students in accelerated classes ______

G. Trends in enrollment over past five years (please check one)

Substantial drops _____ Slowly declining _____

About the same _____ Slowly increasing _____

Substantial increase _____

Briefly provide any explanation you might have to account for the trend.

H. If "tracking," number of students in college track vs. vocational track

College bound ______ vocational track ______

I. On the average how many students move into the school district each year. ______

J. Amount of absenteeism i.e., average number of days absent per student. ______

K. Total number of students in district enrolled in nonpublic schools. ______

VI. Budget

A. Percent of total revenue from local funds _____%

B. Percent of total revenue from state funds _____%

C. Percent of total revenue from federal funds _____%

D. What is the tax source(s) generating local funds?

E. Per pupil expenditures

For all students $______

For elementary students $______

For junior/middle high students $______

For senior high students $______

VII. Recent Community Support for Public Education

A. Have there been any outcomes of recent bond issue elections or outcomes of other school related elections which would indicate either strong support or lack of support for public education? If so, please describe.

B. Please comment on the extent to which parents support, and participate in, the PTA in your district.

C. Any indications of an increasing proportion of families sending their children to private schools? If so, please provide your understanding as to why.

D. Has there been any change in the tax rate for public education?

E. Other evidence of community support or lack of support for public education.

Local Funding

We would appreciate the following information concerning local funding for your school system.

1. What local governmental body(s) controls the allocation of local funds to the school system? Are the members of this body appointed or elected? What is their term of office?

2. What is the assessed valuation of the district? $________
   What percentage of the actual valuation is the assessed valuation? _______%

3. What is the tax rate per thousand dollars of assessed valuation? $__________

4. What percent of local taxes are appropriated for the school district? _____%

5. What percent of the local governmental budget is spent on public education? ______%

6. Does your school system fall under the jurisdiction of more than one local governmental structure, e.g., both a county and city government? If so, please differentiate between the two regarding their separate areas of jurisdiction.

7. What is your opinion regarding the amount of support (both verbal and financial) given public education by the community.

PROJECT CHARACTERISTICS FORM

The following is some of the information NTS would like to have for developing a statement on the historical development of career education in your school system. If you have any information in addition to what we are requesting, it would, of course, be greatly appreciated. If we have not included enough space for your response, please use the back side, or additional paper.

I. Historical Background

A. Initial year for career education in the system

1. Year started? ______________________________
2. Grade levels affected? ______________________
3. Program initiated at what organizational level e.g., LEA or SEA
4. Is system member of a consortium? If so, how many other systems are in the consortium?
5. Level and source of funding
6. Brief summary of first year objectives and activities
7. Make note of any factors deemed important in influencing later programs, e.g., active support of Chamber of Commerce, Superintendent

B. Subsequent year(s)

1. Briefly mention any significant changes in level or source of funding

    a. Does superintendent have discretionary control over allocation of state funds for career education? If so, please indicate.

2. Changes (if any) in grade levels or numbers of students affected by program.

    a. Are there target and nontarget schools? If so, describe in terms of grade levels and numbers of schools. Also, note any differences between target and nontarget schools regarding SES level of students. Note rationale for those schools selected as target schools.

3. Summary of staff development activities

    a. Types of inservice programs, university sponsored courses, community internships, etc.

b. Prior to this current project year, what proportion of the present staff had received some staff development training in career education?

1. Elementary teachers _______%
2. Middle school teachers _______%
3. High school teachers _______%
4. Counselors _______%
5. Professional support personnel _______%
6. Administrators _______%

c. In general, what has been the nature of these past staff development activities? (Please check the appropriate squares.)

Instructors or Resource Persons

	College/ University Staff	District career education staff	State Ed. Agency Staff	People from labor or business	Other: ____
Career education concepts					
Teaching techniques for career ed.					
Curriculum materials for career ed.					
Guidance/counseling in career ed.					
Evaluation techniques in career ed.					
Using community resources in career ed.					
Involving parents in career ed.					
Other (please specify): __________					

4. Note any significant changes in, or additions to, program objectives over the past several years.

5. Please describe what you believe have been the real milestones in the implementation of career education since its inception in your school system in the following areas:

    a. Curriculum development, e.g., evidence of teachers infusing career education into teaching, evidence of curriculum units developed and tested, etc.

    b. Parent involvement, e.g., cite degree of participation in such career education activities as workshops, field trips, classroom presentations, task forces, dissemination, etc.

c. Community involvement, e.g., cite examples of participation in activities with students and/or parents, participation in policy-making, participation in teacher development activities

d. Dissemination activities, e.g., presentations before community groups, TV, radio; distribution of leaflets, brochures; presentation before LEA groups, state meeting, etc.

6. With regard to previous "in-house" and third party evaluations, please note what you consider to be particularly important or interesting student gains in career education outcome areas, and/or relationships between process variables and outcomes.

7. Please cite any other changes or developments which you believe had a significant impact on the career education program, e.g., change in leadership, change in position within organizational structure of the school system, etc.

8. Please cite other federal, state, and local programs having similar objectives to career education, e.g., vocational education

    a. Comparative size of programs regarding funding, staff, students affected

b. Degree of cooperation with career education, e.g., sharing of staff

II. Recent Support for Career Education

A. State Department of Education Support

1. Please describe the support you have received from the SEA in the following areas over the past twelve months.

   a. Staff Development

b. Instructional materials

c. Program planning

d. Dissemination

e. Fiscal Support

f. Other

2. How many on-site visits have SEA personnel made in the past twelve months.

B. District Level Administration Involvement

1. Board of Education

   a. Estimation of level of support. Cite examples of support. Any members of the Board opposed to career education? Indication of priority given to career education relative to other programs. What is the chariman's position on career education?

2. Superintendent

   a. Estimation of support; citing examples when possible.

C. Community Level Support for career education

   1. Chamber of Commerce activities. How has the Chamber of Commerce supported career education, e.g., written support, assisted with resource directory, assisted with programs in the school, etc.?

   2. Cite support from other segments of the community such as, endorsements by significant community leaders (corporation managers, city mayors, state or federal legislators, local newspaper editorial support), exchange programs, presentations in school, etc.

Implementation/Process Observation Form

Determinants of Implementation

1. Political Complexity and External Agency Support
   a. What is the extent of political complexity in the community?

   b. What is the nature of external agency support for the career education project?

2. Organizational Capacity and History of Innovation
   a.1) Degree of Superintendent support?

   2) How is that support manifested?

   b. Staff morale?

   c. Extent to which innovation is encouraged in LEA?

   d.1) Has there been large scale incorporation of an innovation in the LEA in the past five years?

   2) What was the innovation?

   e. To whom does the project director report?

3. To what extent does career education appear to be congruent with the community's zeitgeist?

4. Opportunistic vs. Problem Solving Adoption Philosophy
    a. How did the project find out about funding under this grant?

    b. Who wrote the current proposal?

    c. What is the nature of project continuation plans?
        1) For funding?

        2) For assimilation?

5. Attitudes Toward Source of Funding of the Innovation
    a. What is the perceived role for OCE?

    b. What are the project director's attitudes toward the funding cycle?

    c. To what extent are OCE's learner outcomes perceived to be appropriate?

    d.1) What are the project director's attitudes concerning OCE monitoring activities?

        2) How many visits have monitors made to the project this year?

6. Adoption Strategies
    a. What is the nature and extent of awareness building activities?

    b. What is the nature of inservice followup?

c. To what extent is feedback obtained from practitioners?

d. What is the extent of practitioner praticipation in implementation decisions?

7. Incentives and Disincentives for Adoption
   a. Teachers?

   b. Counselors?

   c. Principals?

8. Explicitness of Innovation

   a. How well is career educaton articulated?

   b. How precisely are the outcomes defined?

   c. How completely are processes delineated?

   d. To what extent are alternatives considered?

9. Complexity of Implementation
   a. To what extent have similar programs been present?

   b.1) How major are necessary staffing adjustments?

   2) Is the number of people newly involved high or low?

3) To what extent are external agencies newly involved?

10. How much time was allowed for planning and orientation prior to implementation?

11. Level of Resource Commitment
    a. Level of resources from whatever sources beyond regular per pupil expenditures?

    b. Estimate of facilities and other support provided to Project Director?

12. Saturation of Adopting Agency
    a. Percentage of primary level schools involved?

    b. Percentage of secondary level schools involved?

13. Project Director Characteristics
    a. Prior project management experience?

    b. Prior experience in career education?

    c. Prior teaching experience?

    d. Prior administrative experience?

PROCESS DIMENSIONS

1. To what extent has the project led to development or acquisition of new tangible resources?

2. To what extent has the project led to development of new intangible resources?

3. What changes in role/behavior does the project director hope to see among:
   a. Teachers?

   b. Counselors?

   c. Principals?

4. What types of knowledge and understanding does the project director hope to be imparted to:
   a. Teachers?

   b. Counselors?

   c. Principals?

5. What kinds of changes in attitudes does the project director hope will result among:
   a. Teachers?

   b. Counselors?

   c. Principals?

Community Census Data Checklist

Census area defined:

Population characteristics of county as of 1970

Name of county ____________________

Density (population/sq. mile) __________
Percent of population considered urban __________
Percent change in population from 1960 __________
    Total population __________
    Urban population __________
    Rural population __________

Employment

Total persons 16 years of age or older
Percent of total persons not in labor force
Percent of unemployed persons in civilian labor force

Total males 16 years of age or older
Percent of males not in labor force
Percent of unemployed males in civilian labor force

Total females 16 years of age or older
Percent of females not in labor force
Percent of unemployed females in civilian labor force

Industry of employed persons

Total employed persons 16 hears old and over
Leading indudstry in employed persons
Top three manufacturing areas

Second industry regards employed persons
Third industry regards employed persons

Family Income

Total number of families
Median income
Mean income

Percent of households occupied by owner
Mean value of unit

Percent of household occupied by renter
Mean gross rent of unit

Povertystatus of families

Total number of families with income under poverty level
Percent of all families
Percent receiving public assistance
Percent having related children under 18

General Characteristic

- Total population in 1970 ____________
    - Percent changes from 1960 ____________
    - Percent minority ____________
    - Percent Male ____________
    - Percent Female ____________
    - Percent foreign born ____________
    - Percent under 18 years old ____________
    - Predominate country of origin ____________

Mobility

- Percent of population born in state ____________
- Percent of 1970 population living in same county in 1965 ____________
- Percent of all workers working in county of residence ____________

Education

- Total enrolled in K-12 in 1970 ____________
    - Percent of total K children in public schools ____________
    - Percent of 1-8 grade children in public schools ____________
    - Percent of high school children in public schools ____________
- Total enrolled in college ____________

Percent of all males 16 to 21 years old who are not high school graduates. ____________

Median school years completed all persons 25 years or older ____________

- Males 25 years or older ____________
- Females 25 years or older ____________

Vocational training of persons 16 to 64 years old. ____________

- Percent of males ____________
- Percent of females ____________

Family Composition

- Total number of families ____________
    - Percent of families having children under 18 years of age ____________
    - Percent of persons under 18 living with both parents ____________
- Mean size of family ____________

APPENDIX B.2

IMPLEMENTATION/PROCESS INSTRUMENTATION

APPENDIX B.2

IMPLEMENTATION/PROCESS INSTRUMENTATION

Four instruments have been included in this section:

1. *Student Information Form.*
2. *Teacher Survey Form.*
3. *Counselor Survey Form.*
4. *Principal Survey Form.*

The tables on the following two pages briefly describe these four instruments. Further information about all four can be found in Chapter 2 of this report; a detailed discussion of the scoring of the opinion sections of the Teacher, Counselor, and Principal Survey Form is located in Chapter 3, Volume III, *The Career Education Instrument Substudy.*

Characteristics of the Student Information Form

DOMAIN Variable Set	Respondent	# of Items	Item Type	Typical Item(s)
DETERMINANTS Determinants of Student Exposure to Career Education • Student demographic characteristics • school experiences	All Students	10	Closed Choice	• Which one of the following best describes your grades so far in school? • How many brothers and sisters do you have?
PROCESS Exposure to Career Education Activities • Classroom	Grade 5	8	Five Choice - Frequency of Participation Items	• Use TV, tapes, filmstrips or radio to learn about jobs. • Take tests to find out about my job interests and skills. a. Almost every day b. Once a week c. Once or twice a month d. Less than once a month e. Never
	Grades 8 & 11	11		
• Linkage	Grade 5	4	Five Choice - Frequency of Participation Items	• Attend a career fair (a place where many different people come to talk about their jobs). • Talk about the steps to take in making career decisions. a. Almost every day b. Once a week c. Once or twice a month d. Less than once a month e. Never
	Grades 8 & 11	3		
• Extra School	Grade 5	7	Five Choice - Frequency of Participation Items	• Go on field trips to business or industries to learn what people do in their jobs. • Take part in a school supervised work experience or work-study program. a. Almost every day b. Once a week c. Once or twice a month d. Less than once a month e. Never
	Grades 8 & 11	8		
OUTCOME Plans and Expectations	Grade 5	0	Closed Choice	• How often have you discussed your plans with the following people? • Which one of the following best describes your plans for the year after you leave high school?
	Grade 8	5		
	Grade 11	10		

Characteristics of Teacher, Counselor, and Principal Survey
Forms Organized by Components of The Conceptual Framework

Domain Variable Set	Respondent Group	# of Items	Type Item	Typical Item (s)
DETERMINANTS OF IMPLEMENTATION				
Staff Characteristic	Teachers	11	Closed Ended	• Degree currently working toward: Masters, Doctorate, None • For how many occupations other than in the field of education have you studies or prepared? None, one, two, three, four, or more?
	Counselors	9		
	Principals	7		
Content Role	Teachers	4	Open and Closed Ended	• How much planning time do you have during your regular school hours? • About how many students are assigned to you for counseling? • About what percentage of your students are Title I eligible?
	Counselors	4		
	Principals	10		
Organizational Capacity	Teachers	2	Open and Closed Ended	• How would you rate the general level of staff morale (or espirit de corps) of the professional staff in your school? a. very high moreale among most of staff b. high morale mong most of staff c. mixed - some high morale, some low morale d. low morale among most of staff e. very low morale among most of staff
	Counselors	2		
	Principals	2		
Adoption Strategy	Teachers	2	Open and Closed Ended	• How many hours, in total, have you participated in career education staff development activities since you began your involvement in career education? • How frequently do faculty meetings concerned with career education take place in your school?
	Counselors	2		
	Principals	6		
PROCESS DIMENSIONS				
Knowledge & Understanding	Teachers	5	Closed Ended	Which one of the following best describes how adequately you are prepared for the implementation of a career education program? a. adequately prepared b. moderately prepared c. slightly prepared d. not prepared
	Counselors	4		
	Principals	4		
ROLE/BEHAVIOR				
• Classroom Activities	Teachers	13	Five-point Frequency of Participation	• Advise individual students about career possibilities. • Give career related interest and/or aptitude inventories to students a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school
	Counselors	13		
	Principals	0		
Linkage Activities	Teachers	6	Five-point Frequency of Participation	• Help plan and coordinate a career education fair for students. • Team with career education project staff to present career oriented activities to students. • Conduct staff meetings to plan career education activities for the school. a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school
	Counselors	11		
	Principals	11		
Extra-school Activities	Teachers	10	Five-point Frequency of Participation	• Have students go on field trips to businesses and industries. • Use parents to present career related programs to the students. • Speak to parents and other community groups about the importance of career education. a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school
	Counselors	12		
	Principals	8		
VALUE INTERNALIZATION	Teachers	40	Four-point Likert-Type Opinion Items	• A career education program does not change the role of the counselor. • Career education fosters premature career decisions. a. strongly agree b. agree c. disagree d. strongly disagree
	Counselors	40		
	Principals	40		

STUDENT INFORMATION FORM

IMPORTANT DIRECTIONS FOR MARKING THIS SHEET

- **Use black lead pencil only (No. 2 or No. 2½).**
- **Do NOT use ink or ballpoint pen.**
- **Make heavy black marks that fill the circle completely.**
- **Erase cleanly any response you wish to change.**
- **Make no stray marks on this sheet.**

IMPROPER MARKS	PROPER MARKS
✓○ ○⊗ ○◉	●○ ○● ●○

School System Name:

School Name:

School Codes				Teacher I.D.									Student I.D.									
⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪
①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①	①
②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②	②
③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③	③
④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④	④
⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨

Sex: (Mark one)

○ Male
○ Female

How old are you? (Mark your age)

○ 9
○ 10
○ 11
○ 12
○ 13
○ 14
○ 15
○ 16

Birthdate: (Fill in the circle next to the month in which you were born.)

○ January
○ February
○ March
○ April
○ May
○ July
○ August
○ September
○ October
○ November

1. How do you describe yourself? (Mark one)

○ American Indian or Alaskan Native
○ Asian or Pacific Islander
○ Black/Negro
○ Caucasian/White
○ Hispanic (Mexican American, Chicano, Puerto Rican, or other Spanish culture or origin)

2. How many brothers and sisters do you have? (Mark one)

○ None
○ One
○ Two
○ Three
○ Four
○ Five or more

3. How far did the following persons go in school? (Mark one answer in each appropriate column)

Your Father	Your Mother	**Education**
○	○	Less than eighth grade
○	○	Completed eighth grade
○	○	Some high school, but did not graduate
○	○	Graduated from high school
○	○	Technical, nursing, or business school after high school
○	○	Some college but less than 4 years
○	○	Graduated from a 4 year college
○	○	Attended graduate or professional school after college
○	○	Don't know

4. Which one of the following best describes your grades so far in school? (Mark one)

○ Mostly A (90–100)
○ About half A and half B (85–90)
○ Mostly B (80–84)
○ About half B and half C (75–79)
○ Mostly C (70–74)
○ About half C and half D (65–70)
○ Mostly D (60–64)
○ Mostly below D (below 60)

5. Approximately what is the average amount of time you spend on all of your homework during the week? (Mark one)

○ Homework is not usually assigned
○ I have homework but don't do it
○ Less than 5 hours a week
○ Between 5 and 10 hours a week
○ More than 10 hours a week

6. Which of the following do you have in your home? (Mark one on each line)

Have	Do Not Have	
○	○	A specific place to study
○	○	Daily newspaper
○	○	Dictionary
○	○	Encyclopedia
○	○	Magazines
○	○	Record player
○	○	Tape recorder or cassette player
○	○	Color television

7. How much television do you usually watch each school night? (Mark one)

○ None
○ Less than an hour
○ About one hour
○ About two hours
○ About three hours
○ About four hours
○ About five hours
○ More than five hours

The following questions are only for those in junior high school (middle school) or high school. If you are in elementary school (grade school — grades 4, 5, 6), skip the rest of this part of the survey and go on to Part 2.

8. What is the highest level of schooling that you think you will get? At a minimum do you expect to: (Mark one)

○ Quit school as soon as possible
○ Graduate from high school
○ Graduate from a vocational, technical, trade or business school
○ Graduate from a two-year or junior college
○ Graduate from a four-year college or university
○ Graduate from a graduate or pro-

9. How often have you discussed your plans for after high school with the following people? (Mark only one on each line)

Never	Seldom	Often	
○	○	○	Your parent(s)
○	○	○	A relative other than your parents
○	○	○	A guidance counselor
○	○	○	A teacher other than a guidance counselor
○	○	○	The principal or assistant principal
○	○	○	Clergy (minister, priest, rabbi, etc.)
○	○	○	State employment service officer
○	○	○	An adult not mentioned above
○	○	○	Friends your own age

10. About how many hours a week do you normally work at a paid job outside your home in addition to going to school? (Mark one)

○ None
○ 1–5 hours per week
○ 6–10 hours per week
○ 11–15 hours per week
○ 16–20 hours per week
○ More than 20 hours per week

11. About how many hours a week do you normally spend doing non-paid volunteer work outside your home (such as work in a hospital)? (Mark one)

○ None
○ 1–5 hours per week
○ 6–10 hours per week
○ 11–15 hours per week
○ 16–20 hours per week
○ More than 20 hours per week

12. If there were no obstacles, what is the highest level of schooling you would like to get? At a minimum would you like to: (Mark only one)

○ Quit school and go to work as soon as you are old enough
○ Graduate from high school
○ Graduate from vocational, technical, trade or business school
○ Graduate from a two-year or junior college
○ Graduate from a four-year college or university
○ Graduate from a graduate or professional school after college

The remaining questions are only for high school students (grades 10, 11, 12). If you are not in high school, skip the rest of Part 1 and go on to Part 2.

13. What are your feelings about your school? (Mark only one answer in each line)

Agree	Disagree	Does Not Apply	
○	○	○	Most required courses here are a waste of time
○	○	○	School should have placed more emphasis on vocational and technical programs
○	○	○	School did not offer enough practical work experience
○	○	○	School provided me with counseling that will help me continue my education
○	○	○	School gave me new ideas about the type of work I want to do
○	○	○	School provided me with counseling that helped me get a better idea of myself and my relations with other people
○	○	○	School provided me with counseling that will help me find employment
○	○	○	School should help students find jobs when they leave school
○	○	○	School should have placed more emphasis on basic academic subjects (math science, English, etc.)
○	○	○	School helped me learn that the career I choose should not be limited by my sex or race

14. About how many hours of your time during a typical school day is spent in each of the following activities? (Mark only one answer in each line; if none of the choices is exactly correct, choose the one that is closest)

No. of Hours

None	Less than 1 hour	1	2	3	4	5	6 or more	
○	○	○	○	○	○	○	○	Academic or college preparation courses
○	○	○	○	○	○	○	○	General courses (e.g. art, music, physical education)
○	○	○	○	○	○	○	○	Vocational/Technical courses
○	○	○	○	○	○	○	○	Working outside the school as part of the school program
○	○	○	○	○	○	○	○	Extracurricular activities (e.g. band, school clubs, etc.)

15. How important was each of the following factors in determining the kind of work you plan to be doing for most of your life? (Mark only one on each line)

Not Important	Somewhat Important	Very Important	
○	○	○	Previous work experience in the area
○	○	○	Relative or friend in the same line of work
○	○	○	Job openings available in the occupation
○	○	○	Work matches a hobby interest of mine
○	○	○	Good income to start or within a few years
○	○	○	Job security and permanence
○	○	○	Work that seems important and interesting to me
○	○	○	Freedom to make my own decisions
○	○	○	Opportunity for promotion and advancement in the long run
○	○	○	Meeting and working with sociable, friendly people

16. Which one of the following best describes your plans for the year after you leave high school? (Mark as many as apply)

- ○ Working full-time
- ○ Entering an apprenticeship or on-the-job training program
- ○ Going into regular military service
- ○ Being a full-time homemaker
- ○ Taking vocational or technical courses at a trade or business school
- ○ Taking mostly academic courses at a junior or community college
- ○ Taking mostly technical or vocational subjects at a junior or community college
- ○ Attending a four-year college or university
- ○ Working part-time
- ○ Other (travel, take a break, no plans)

Complete the following question only if you marked more than one answer in Question 16. If you marked only one answer in Question 16, please turn to Part 2 and continue.

17. Of the answers you marked in Question 16, which one answer best describes how you will spend the major share of your time in the year after you leave high school? (Mark one)

- ○ Working full-time
- ○ Entering an apprenticeship or on-the-job training program
- ○ Going into regular military service
- ○ Being a full-time homemaker
- ○ Taking vocational or technical courses at a trade or business school
- ○ Taking mostly academic courses at a junior or community college
- ○ Taking mostly technical or vocational subjects at a junior or community college
- ○ Attending a four-year college or university
- ○ Working part-time
- ○ Other (travel, take a break, no plans)

PART 2: STUDENT ACTIVITY CHECKLIST

Please indicate how often you take part in the activities listed below. Mark the circle that is closest to what you think is the correct answer. If you have taken part, mark (a) almost every day, (b) once a week, (c) once or twice a month, (d) less than once a month. If you have never taken part in the activity, mark (e) never.

(a) Almost every day
(b) Once a week
(c) Once or twice a month
(d) Less than once a month
(e) Never

1. ○ ○ ○ ○ ○ Use TV, tapes, filmstrips or radio to learn about jobs
2. ○ ○ ○ ○ ○ Attend a career fair (a place where many different people come to talk about their jobs)
3. ○ ○ ○ ○ ○ Talk about jobs and careers with groups of students
4. ○ ○ ○ ○ ○ Go around with workers to learn what they do on their jobs
5. ○ ○ ○ ○ ○ Talk about how people in certain jobs and careers may have certain attitudes and values
6. ○ ○ ○ ○ ○ Study the interests and abilities people need to have for particular jobs and careers
7. ○ ○ ○ ○ ○ Talk with the class about what was learned about careers on field trips
8. ○ ○ ○ ○ ○ Use the library or learning center to learn about careers
9. ○ ○ ○ ○ ○ Take part in class activities where we pretend we are in different jobs
10. ○ ○ ○ ○ ○ Go on field trips to business or industries to learn what people do in their jobs
11. ○ ○ ○ ○ ○ Talk about how reading and arithmetic will be important to me in my future jobs and career
12. ○ ○ ○ ○ ○ Listen to workers (other than parents of students in the class) talk to the class about the work that they do
13. ○ ○ ○ ○ ○ Listen to the parents of other students in the class talk to the class about what they do in their work
14. ○ ○ ○ ○ ○ Take tests to find out how much I know about different jobs and what people in them do
15. ○ ○ ○ ○ ○ Take home material from class so that my parents can help me learn about jobs and what work I might want to
16. ○ ○ ○ ○ ○ Listen to my parents talk about what they do at their work
17. ○ ○ ○ ○ ○ Ask my parents questions about what they do at work
18. ○ ○ ○ ○ ○ Hear that a person can choose any job and that a person's sex or race should not matter in making a job choice
19. ○ ○ ○ ○ ○ Talk about my own values about work
20. ○ ○ ○ ○ ○ Attend meetings of groups that are learning about jobs and careers such as the Future Farmers of Americ Teachers of America, 4H, Future Homemakers of America, and Junior Achievement, when I am not in

The following items are only for junior high (middle school) or high school students. If you are in elementary school (grade school — grades 4, 5, or 6), you are done with this survey.

21. ○ ○ ○ ○ ○ Hear about how to look for and get a job (such as how to read want ads, how to fill out a resume, how to conduct myself in an interview)
22. ○ ○ ○ ○ ○ Get personal advice from people in the school about my future job possibilities
23. ○ ○ ○ ○ ○ Receive personal advice from people at school about future education possibilities and how to apply to college
24. ○ ○ ○ ○ ○ Take tests to find out about my job interests and skills
25. ○ ○ ○ ○ ○ Get personal help from people in the school in finding a paid job (either part-time or full-time)
26. ○ ○ ○ ○ ○ Take part in a school-supervised work experience or work-study program
27. ○ ○ ○ ○ ○ Talk about the steps to take in making career decisions

S.C.	S.C.	S.C.	
			DO NOT MARK IN THIS SHADED AREA
⓪ ⓪ ⓪ ⓪ ⓪ ⓪	⓪ ⓪ ⓪ ⓪ ⓪ ⓪	⓪ ⓪ ⓪ ⓪ ⓪ ⓪	
① ① ① ① ① ①	① ① ① ① ① ①	① ① ① ① ① ①	
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nts

NATIONAL TESTING SERVICE, INC.
1905 Chapel Hill Road
Durham, North Carolina 27707

NATIONAL CAREER EDUCATION EVALUATION PROJECT

TEACHER SURVEY FORM

Dear Colleague:

The National Testing Service (NTS) of Durham, North Carolina, under contract to the U. S. Office of Education, is presently conducting a career education evaluation project. This project has two major goals: (1) to provide assistance to career education projects to help them improve their efforts at evaluation; and (2) to develop a field tested evaluation model for use throughout the nation in career education.

As part of this evaluation effort, it is necessary to collect data from major participants in the school program as to their ideas about and possible activities in career education. Data is being sought from both those who are actively involved as well as those who are not. The attached survey is designed for this purpose. We would very much appreciate it if you could take the time to complete this instrument.

Before completing the survey, there are a few important things you should know. First, there are no "right" or "wrong" answers to the many attitude and activity items in the survey. We only ask that you answer as honestly as you can, reflecting your true feelings and experience. Second, all data will be treated in strictest confidence. Data on individuals will not be reported back to your school system nor will the school system see the data before it is sent to NTS. For its part, NTS will see the data but will not have the names of any individuals who submitted it. Finally, these data will be used to prepare a report on the school system career education program as well as to test out the evaluation system for possible use in other locations around the nation. The data will not be used to evaluate individual teachers, counselors, or principals.

We very much appreciate your cooperation in this important project. We know that we are taking valuable time from your schedule, but we believe it will be time well spent both for your students and other school systems around the nation.

Thank you.

Sincerely,

A. Jackson Stenner

A. Jackson Stenner
President, National Testing
Service

NOTE: This report is authorized by law (20 U.S.C. 1865; 45 CFR Part 160d). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate and timely.

DIRECTIONS: Please write your answers on the separate answer sheet by either writing in the answer or by writing in the latter corresponding to the answer provided in this questionnaire. Thank you very much for your cooperation.

Part 1: TEACHER INFORMATION FORM

School System (Write in on answer sheet.)

School Name (Write in on answer sheet.)

Social Security Number (Last four digits only)

1. Your age at last birthday? (For example, if you are 32, write "32" on the answer sheet.)

2. Your Sex? (Write the appropriate letter on the answer sheet.)

   a. Male
   b. Female

3. How do you describe yourself? (Write the appropriate letter on the answer sheet.)

   a. American Indian or Alaskan Native
   b. Asian or Pacific Islander
   c. Black/Negro, Not of Hispanic Origin
   d. Caucasian/White, Not of Hispanic Origin
   e. Hispanic (Mexican American, Chicano, Puerto Rican, or other Spanish culture or origin)

4. Highest degree held: (Write the appropriate letter on the answer sheet.)

   a. Bachelor
   b. Bachelor plus additional course work
   c. Masters
   d. Masters plus additional course work
   e. Doctorate

5. Degree currently working toward: (Write the appropriate letter on the answer sheet.)

   a. Masters
   b. Doctorate
   c. None

6. Employment status? (Write the one appropriate letter on the answer sheet.)

   a. permanent
   b. temporary or substitute
   c. probationary

7. Approximately how many students do you teach per day? (For example, if you teach 84 students, write "84" on the answer sheet.)

8. How much planning time per day do you have during your regular school hours? (Write the appropriate letter on the answer sheet.)

   a. none
   b. less than or equal to one hour
   c. more than one hour

9. What one term best describes the subject area you predominately teach? (Write the letter on the answer sheet for the term that is closest.)

   a. Mathematics/Arithmetic
   b. Vocational/technical/business
   c. Natural sciences
   d. Social sciences/social studies/history/government
   e. Language arts/English
   f. Elementary teacher (covering all or most areas)
   g. Other: (Please write in your subject area on the answer sheet.)

10. What grades do you currently teach? (List as many as apply on the answer sheet.)

    K 1 2 3 4 5 6 7 8 9 10 11 12

11. Do you know whom to contact in your district if you need assistance with: (Write either "a" or "b" on the answer sheet next to the appropriate letter.)

	YES	NO
a. locating career education materials?	a	b
b. conducting career education field trips?	a	b
c. obtaining career education speakers?	a	b

12. For how many occupations other than in the field of education have you studied or prepared? (Write the appropriate letter on the answer sheet.)

    a. none
    b. one
    c. two
    d. three
    e. four or more

13. In how many occupations other than in the field of education have you been employed (excluding summer and/or parttime positions)? (Write the appropriate letter on the answer sheet.)

    a. none
    b. one
    c. two
    d. three
    e. four or more

14. Do you usually work at an occupation other than in the field of education at the following times? (Write either "a" or "b" on the line next to the appropriate letter on the answer sheet.)

	YES	NO
a. In the summer	a	b
b. In the evenings during the school year	a	b
c. On weekends during the school year	a	b

15. At the end of this school year, what will be your total number of years of teaching experience? (For example, if you have 12 years experience, write "12" on the answer sheet.)

16. Have you ever served in any of the following education positions? (Write either "a" or "b" on the line next to the appropriate letter on the answer sheet.)

	YES	NO
a. Counselor	a	b
b. Assistant Principal	a	b
c. Principal	a	b
d. Administrator in District Office	a	b
e. Other (Please write in on answer sheet.)	a	b

17. Which one of the following statements best describes the current position of your school on the career education concept? (Choose one.) (Write in the appropriate letter on the answer sheet.)

    a. The concept of career education is being actively implemented.
    b. The concept of career education has been approved by the school but has not yet been implemented.
    c. The concept of career education is under discussion but no formal position has been taken by the school.
    d. The concept of career education was considered and rejected as inappropriate for the school.
    e. The concept of career education has not been considered at the school.

18. Which one of the following statements best describes your own understanding of the concept of career education? (Write in the appropriate letter on the answer sheet.)

    a. I feel I have a full understanding of the concept of career education.
    b. I feel I have only a partial understanding of the career education concept.
    c. I feel I do not understand the career education concept.

19. Which one of the following best describes how adequately you are prepared for implementing career education? (Write in the appropriate letter on the answer sheet.)

    a. Adequately prepared
    b. Moderately prepared
    c. Slightly prepared
    d. Not prepared

20. Based on your understanding of the concept of career education, how much would you say you agree with the goals and objectives of career education? (Write in the one appropriate letter on the answer sheet.)

    a. Strongly agree with the goals of career education
    b. Agree with the goals of career education
    c. Disagree with the goals of career education
    d. Strongly disagree with the goals of career education
    e. Have no understanding of the goals of career education

21. How would you rate the general level of staff morale (or "esprit de corps") of the professional staff in your school? (Write the letter on the answer sheet corresponding to the one that comes closest to your impressions.)

    a. Very high morale among most of the staff
    b. High morale among most of the staff
    c. Mixed - some high morale, some low morale
    d. Low morale among most of the staff
    e. Very low morale among most of the staff

Part 2: ACTIVITIES SECTION

For each of the activities listed below, please indicate how frequently you conduct or actively participate in the activity. Write on the line next to the number on the answer sheet the letter corresponding to how frequently you conduct or actively participate in the activity.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

1. Have students study the relationship between basic subject skills (such as reading, math, science, etc.) and particular careers.
2. Have students participate in followup discussions after career education field trips.
3. Take part in developing career education curriculum units and materials for myself or others.
4. Team with guidance/counseling personnel to present career-oriented activities in the classroom.
5. Have students use a career education resource or media learning center.
6. Actively assist students in gaining admission to a post-secondary educational institution.
7. Have students participate in simulated work experiences in the school.
8. Have other school staff present information about their specific career skills to the students.
9. Use parents to present career related programs to the students.
10. Have people (other than parents) from business, labor or industry present information about careers to the students.
11. Advise individual students about career possibilities.
12. Team with career education project staff to present career-oriented activities to students.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

13. Help plan and coordinate a career education fair for students.

14. Have students participate in career related group guidance sessions.

15. Teach students how to make career decisions.

16. Have students learn job getting and job seeking skills such as how to fill out an application form, how to prepare a resume, and how to behave on a job interview.

17. Have students go on field trips to businesses or industries.

18. Assess student knowledge of the world of work through self-made or commercial tests.

19. Have students engage in activities aimed at reducing sex stereotyping in their career choices.

20. Have students participate in shadowing (following and observing workers) activities.

21. Have students study the relationships among interests and abilities and various careers.

22. Actively assist in the occupational placement of school leavers.

23. Have students use TV, tape, filmstrips or radio to learn about occupations.

24. Assist students in clarifying their values related to work.

25. Have students take home materials related to career options and opportunities for them and their parents to work on together.

26. Give career related interest and/or aptitude inventories to students.

27. Have students engage in activities aimed at reducing race stereotyping in their career choices.

a. almost every day b. once a week c. once or twice a month d. less than once a month e. never f. does not apply to my role in this school

28. Work with parents to help students acquire and practice good work habits.

29. Use people in the business, labor, and industry community to assist in parttime and fulltime job placement programs.

30. Please indicate the type of career education staff development you have received. Staff development focused on: (Write in the letters on the answer sheet for as many as apply; If none of them apply, write "NONE" on the answer sheet.)

    a. Career Education concepts
    b. Teaching techniques for career education
    c. Curriculum materials for career education
    d. Guidance/Counseling techniques in career education
    e. Evaluation techniques for career education
    f. Using community resources in career education
    g. Involving parents in career education
    h. Other: (Please write in on the answer sheet.)

31. How many hours, in total, have you participated in career education staff development activities since you began your involvement in Career Education? (For example, if you have participated in 10 hours of training, write "10" in the space on the answer sheet.)

Part 3: OPINION SECTION

Please indicate your response to each of the following statements by writing in the letter corresponding to your opinion next to the appropriate number on the answer sheet.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

1. Too many students leave our schools lacking the work habits necessary for making a successful transition from school to work.

2. It is not an appropriate role of the school to ask the home and family to provide career-oriented activities for their children.

3. Training in career education should be required for certification of education personnel.

4. Classroom teachers have a responsibility to help students gain an appreciation of the value and importance of work.

5. Elementary school is too early for students to start thinking about career possibilities.

6. Active participation in a career education program will enhance a teacher's overall teaching effectiveness.

7. The relationships between education and work can be most meaningfully taught as a separate course.

8. A career education program does not change the role of the counselor.

9. Career education will have little effect on the career aspirations of students compared with the effect of their socio-economic status.

10. Accomplishment through a paid occupation is necessary in order to gain in personal understanding and have a positive self-concept.

11. Helping minority students enter occupations not traditionally held by members of their race can be an important outcome of career education.

12. Business and labor representatives should advise educators about school programs, but it is not appropriate for these lay persons to participate in joint decisionmaking with educators.

13. It does not take a lot of money to begin implementing career education.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

14. It is hard to be happy if one cannot find meaning in the work that one does.

15. As part of the school program, students should be involved in a variety of work experiences in the community.

16. Schools without career education do an adequate job of preparing students for careers.

17. An effective program of career education will result in more realistic career aspirations for students.

18. Infusing career education into the curriculum enhances student interest in learning.

19. An active career education program will detract from learning basic academic skills.

20. A career education program, if successful, will improve student attendance rates.

21. Career education fosters premature career decisions.

22. Schools should not be responsible for teaching students how to write a resume, how to conduct oneself in an employment interview and other job getting skills.

23. Career education is more important for the non-college bound student.

24. Few business people in this community have the time and the interest to give career-related presentations to school classes.

25. In the past, most students have made appropriate educational and career decisions without career education.

26. To infuse career education into the curriculum would foster the achievement of other instructional objectives.

27. A college degree is no longer a pre-requisite for occupational success.

28. The career of most people begins with their first paid job and ends upon retirement.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

29. Career education cannot be done effectively without the addition of new courses and new facilities to the present educational program.

30. Helping female students consider traditionally male careers is a proper role for parents but not the schools.

31. Work experience should be possible for all students not just for those in vocational programs.

32. It is important to prepare people for the unpaid work, as well as the paid work, that they will do.

33. Parents are good career education resource persons to use in the classrooms.

34. Career education is asking teachers to take on the role of the counselor.

35. Career education should be an integral part of the curriculum for all students from kindergarten through grade 12.

36. Career education is really quite different from vocational education.

37. Without an effective career education program most students, upon graduation, would lack the decisionmaking skills necessary for adapting in today's rapidly changing world.

38. One of the responsibilities of the schools is job placement for all students who desire to work.

39. Career education is just a fad.

40. "Work" and "job" really mean the same thing.

41. Rate how effective your school's program is in achieving the following objectives. (Rate each item by choosing the appropriate response from the categories listed below and write the letter corresponding to your choice on the line provided on the answer sheet.)

a. Not Effective
b. Slightly Effective
c. Moderately Effective
d. Very Effective
e. Not applicable for students in this school

Our school develops students who are:

a. Competent in the basic academic skills required for adaptability in our rapidly changing society.

b. Equipped with good work habits.

c. Capable of choosing and who have chosen a personally meaningful set of work values that foster in them a desire to work.

d. Equipped with career decisionmaking skills, job hunting skills, and job getting skills.

e. Equipped with job specific occupational skills and interpersonal skills at a level that will allow them to gain entry into and attain a degree of success in the occupational society.

f. Equipped with career decisions based on the widest possible set of data concerning themselves and their educational-vocational opportunities.

g. Aware of means available to them for continuing and recurrent education once they have left the formal system of schooling.

h. Successful in being placed in a paid occupation, in further education, or in a vocation consistent with their current career education.

i. Successful in incorporating work values into their total personal value structure in such a way that they are able to choose what, for them, is a desirable lifestyle.

42. Ignoring restraints such as level of funding, please tell us what changes you would want to see instituted to improve your career education program. (Write in your answer on the lines provided on the answer sheet.)

[IF THERE ARE NO ADDITIONAL QUESTIONS PROVIDED FOR YOUR SCHOOL, YOU HAVE COMPLETED THIS QUESTIONNAIRE. THANK YOU VERY MUCH FOR YOUR COOPERATION.]

TEACHER SURVEY FORM ANSWER SHEET

Information Form

School System Name

____

School Name

____

Social Security Number
(Last 4 Digits Only)

____

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____
7. ____
8. ____
9. ____________

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National Testing Service - National Career Education Evaluation Project

nts
NATIONAL TESTING SERVICE, INC.
1905 Chapel Hill Road
Durham, North Carolina 27707

NATIONAL CAREER EDUCATION EVALUATION PROJECT

COUNSELOR SURVEY FORM

Dear Colleague:

The National Testing Service (NTS) of Durham, North Carolina, under contract to the U.S. Office of Education, is presently conducting a career education evaluation project. This project has two major goals: (1) to provide assistance to career education projects to help them improve their efforts at evaluation; and (2) to develop a field tested evaluation model for use throughout the nation in career education.

As part of this evaluation effort, it is necessary to collect data from major participants in the school program as to their ideas about and possible activities in career education. Data is being sought from both those who are actively involved as well as those who are not. The attached survey is designed for this purpose. We would very much appreciate it if you could take the time to complete this instrument.

Before completing the survey, there are a few important things you should know. First, there are no "right" or "wrong" answers to the many attitude and activity items in the survey. We only ask that you answer as honestly as you can, reflecting your true feelings and experience. Second, all data will be treated in strictest confidence. Data on individuals will not be reported back to your school system nor will the school system see the data before it is sent to NTS. For its part, NTS will see the data but will not have the names of any individuals who submitted it. Finally, these data will be used to prepare a report on the school system career education program as well as to test out the evaluation system for possible use in other locations around the nation. The data will not be used to evaluate individual teachers, counselors, or principals.

We very much appreciate your cooperation in this important project. We know that we are taking valuable time from your schedule, but we believe it will be time well spent both for your students and other school systems around the nation.

Thank you.

Sincerely,
A. Jackson Stenner

A. Jackson Stenner
President, National
Testing Service

NOTE: This report is authorized by law (20 U.S.C. 1865; 45 CFR Part 160d). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

DIRECTIONS: Please write your answers on the separate answer sheet by either writing in the answer or by writing in the letter corresponding to the answer provided in this questionnaire. Thank you very much for your cooperation.

Part 1: COUNSELOR INFORMATION FORM

School System (Write in on answer sheet.)

School Name (Write in on answer sheet.)

Social Security Number (Last Four Digits Only) (Write in on answer sheet.)

1. Your age at last birthday? (For example, if you are 32 years old, write in "32" on the answer sheet.)

2. Your sex? (Write the appropriate letter on the answer sheet.)

   a. Male
   b. Female

3. How do you describe yourself? (Write the appropriate letter on the answer sheet.)

   a. American Indian or Alaskan Native
   b. Asian or Pacific Islander
   c. Black/Negro, Not of Hispanic Origin
   d. Caucasian/White, Not of Hispanic Origin
   e. Hispanic (Mexican American, Chicano, Puerto Rican, or other Spanish culture origin)

4. Highest degree held: (Write the appropriate letter on the answer sheet.)

   a. Bachelor
   b. Bachelor plus additional course work
   c. Masters
   d. Masters plus additional course work
   e. Doctorate

5. For how many occupations other than in the field of education have you studied or prepared? (Write in the one appropriate letter on the answer sheet.)

   a. none
   b. one
   c. two
   d. three
   e. four or more

6. In how many occupations other than in the field of education have you been employed (excluding summer and/or parttime positions)? (Write in the one appropriate letter on the answer sheet.)

   a. none
   b. one
   c. two
   d. three
   e. four or more

7. Do you usually work at an occupation other than in the field of education at the following times? (Write either "a" or "b" on the line next to the letter on the answer sheet.)

	YES	NO
a. In the summer	a	b
b. In the evenings during the school year	a	b
c. On weekends during the school year	a	b

8. At the end of this school year, what will be your total number of years of counseling experience? (For example, if you have 12 years experience, write "12" on the answer sheet.)

9. Have you ever served in the following education positions? (Write either "a" or "b" on the line next to the letter on the answer sheet.)

	YES	NO
a. Classroom Teacher	a	b
b. Assistant Principal	a	b
c. Principal	a	b
d. Administrator in District Office	a	b
e. Other: (Please write in on the answer sheet.)		

10. About how many students are assigned to you for counseling? (For example, if you have 84 students, write in "84" on the answer sheet.)

11. About what percentage of your working time is spent in each of the following activities? (Entries should total 100%.) (Please write in the number next to the appropriate letter on the answer sheet.)

    a. Conferences with individual students
    b. Group counseling sessions with students
    c. Conference with parents
    d. Conference with teachers and other school personnel
    e. Record keeping and clerical work
    f. Community and/or agency contacts
    g. Professional meetings
    h. Other: (Please specify by writing in on the answer sheet.)

12. About what percentage of your time with students is spent dealing with each of the following? (Entries should total 100%.) (Write in the number next to the appropriate letter on the answer sheet.)

    a. Career or vocational guidance, (not college oriented) job placement, job referral
    b. College entrance
    c. Postsecondary education other than four year college
    d. Attendance and discipline
    e. Personal and family problems
    f. Academic or curriculum choices
    g. Other: (Please specify by writing in on the answer sheet.)

13. Which one of the following statements best describes the current position of your school on the career education concept? (Write in the appropriate letter on the answer sheet.)

    a. The concept of career education is being actively implemented.
    b. The concept of career education has been approved by the school but has not yet been implemented.
    c. The concept of career education is under discussion but no formal position has been taken by the school.
    d. The concept of career education was considered and rejected as inappropriate for the school.
    e. The concept of career education has not been considered at the school.

14. Which one of the following statements best describes your own understanding of the concept of career education? (Write in the appropriate letter on the answer sheet.

a. I feel I have a full understanding of the concept of career education.
b. I feel I have only a partial understanding of the career education concept.
c. I feel I do not understand the career education concept.

15. Which one of the following best describes how adequately you are prepared for the implementation of a career education program? (Write in the appropriate letter on the answer sheet.)

a. Adequately prepared
b. Moderately prepared
c. Slightly prepared
d. Not prepared

16. Based on your understanding of the concept of career education, how much would you say you agree with the goals and objectives of career education? (Write in the appropriate letter on the answer sheet.)

a. Strongly agree with the goals of career education
b. Agree with the goals of career education
c. Disagree with the goals of career education
d. Strongly disagree with the goals of career education
e. Not applicable/have no understanding of the goals of career education

17. How would you rate the general level of staff morale (or "esprit de corps") of the professional staff in your school? (Write in the letter corresponding to the one answer that comes closest to your impressions.)

a. Very high morale among most of the staff
b. High morale among most of staff
c. Mixed - some high morale, some low morale
d. Low morale among most of staff
e. Very low morale among most of staff

[FOR HIGH SCHOOL COUNSELORS ONLY: OTHERS GO ON TO PART 2 ON PAGE 6.]

18. Here are some methods that are often used to place or followup students in jobs following graduation. Please indicate whether or not you have used each method during this school year. (Write in the letter corresponding to your answer on the line next to the appropriate letter on the answer sheet.)

	Have Used	Have Not Used
a. Canvass community employers for job opportunities	a	b
b. Canvass employers in nearby communities	a	b
c. Contact State employment agencies for job openings	a	b
d. Contact private agencies for job openings	a	b
e. Review want ads for job opportunities	a	b
f. Advise students generally on how to find jobs	a	b
g. Arrange for employers to interview students	a	b
h. Help students find summer jobs	a	b
i. Help students find parttime jobs	a	b
j. Followup progress of past graduates	a	b
k. Promote placement by speaking to civic groups	a	b
l. Canvass labor unions about job opportunities	a	b
m. Arrange postsecondary school apprenticeships	a	b
n. Assist graduates of past years in finding jobs	a	b

19. About what percentage of this year's graduating class will spend the largest share of their time next year in each of the following activities? (Percentages should total 100%.) (Write in the number on the line next to each of the letters on the answer sheet.)

  a. Working fulltime
  b. Entering an apprenticeship or on-the-job training program
  c. Going into regular military service (or service academy)
  d. Being a fulltime homemaker
  e. Taking vocational or technical courses at a trade or business school
  f. Taking mostly academic courses at a junior or community college
  g. Taking mostly technical or vocational subjects at a junior or community college
  h. Attending a four year college or university
  i. Working parttime, but not attending school or college
  j. Other: (travel, "take break", no idea)

Part 2: ACTIVITIES SECTION

For each of the activities listed below, please indicate how frequently you conduct or actively participate in the activity. Write on the line next to the number on the answer sheet the letter corresponding to how frequently you conduct or actively participate in the activity.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

1. Take part in developing career education curriculum units and materials for myself or others.

2. Actively assist students in gaining admission to a post-secondary educational institution.

3. Use parents to present career related programs to the students.

4. Have people (other than parents) from business, labor or industry present information about careers to the students.

5. Advise individual students about career possibilities.

6. Team with career education project staff to present career-oriented activities to students.

7. Help plan and coordinate a career education fair for students.

8. Have students participate in career related group guidance sessions.

9. Teach students how to make career decisions.

10. Have students learn job getting and job seeking skills such as how to fill out an application form, how to prepare a resume, and how to behave on a job interview.

11. Have students go on field trips to businesses or industries.

12. Assess student knowledge of the world of work through self-made or commercial tests.

13. Have students engage in activities aimed at reducing sex stereotyping in their career choices.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

14. Have students participate in shadowing (following and observing workers) activities.

15. Have students study the relationships among interests and abilities and various careers.

16. Actively assist in the occupational placement of school leavers.

17. Assist students in clarifying their values related to work.

18. Have students take home materials related to career options and opportunities for them and their parents to work on together.

19. Give career related interest and/or aptitude inventories to students.

20. Have students engage in activities aimed at reducing race stereotyping in their career choices.

21. Conduct systematic follow-up studies of former students to determine how well the school helped them learn about and prepare for work.

22. Use people in the business, labor, and industry community to assist in part-time and full-time job placement programs.

23. Help place students in part-time work (paid or unpaid) while they are still in school or during vacation periods.

24. Distribute career-oriented materials to teachers for use with their students.

25. Serve as an instructor in career education inservice training for teachers.

26. Devise career-oriented learning activities and communicate these to teachers.

27. Help academic and vocational teachers in the school meet to identify ways they can cooperate in the career education program.

28. Develop a list of community members who could be used as career education resource persons in the classroom.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

29. Communicate the school's career education program to parents and the business-labor-industry-community.

30. Develop, or obtain from other sources, career education evaluation instruments.

31. Operate a career resource center for students.

32. Provide follow through and/or job adjustment help to school leavers.

33. Complete a school-wide career education needs assessment.

34. Implement a work exploration and/or work experience program available to all students.

35. Interpret career education evaluation data to others in the school.

36. Team with teachers to present career-oriented activities in the classroom.

37. Please indicate the type of career education staff development you have received. Staff development focused on: (Write in the letters on the answer sheet for as many as apply.)

a. Career Education concepts
b. Teaching techniques for career education
c. Curriculum materials for career education
d. Guidance/Counseling techniques in career education
e. Evaluation techniques for career education
f. Using community resources in career education
g. Involving parents in career education
h. Other: (Write in on the answer sheets.)

38. How many hours, in total, have you participated in career education staff development activities since you began your involvement in career education? (For example, if you have participated in 10 hours of training, write "10" on the answer sheet.)

Part 3: OPINION SECTION

Please indicate your response to each of the following statements by writing in the letter corresponding to your opinion next to the appropriate number on the answer sheet.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

1. Too many students leave our schools lacking the work habits necessary for making a successful transition from school to work.

2. It is not an appropriate role of the school to ask the home and family to provide career-oriented activities for their children.

3. Training in career education should be required for certification of education personnel.

4. Classroom teachers have a responsibility to help students gain an appreciation of the value and importance of work.

5. Elementary school is too early for students to start thinking about career possibilities.

6. Active participation in a career education program will enhance a teacher's overall teaching effectiveness.

7. The relationships between education and work can be most meaningfully taught as a separate course.

8. A career education program does not change the role of the counselor.

9. Career education will have little effect on the career aspirations of students compared with the effect of their socio-economic status.

10. Accomplishment through a paid occupation is necessary in order to gain in personal understanding and have a positive self-concept.

11. Helping minority students enter occupations not traditionally held by members of their race can be an important outcome of career education.

12. Business and labor representatives should advise educators about school programs, but it is not appropriate for these lay persons to participate in joint decisionmaking with educators.

13. It does not take a lot of money to begin implementing career education.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

14. It is hard to be happy if one cannot find meaning in the work that one does.

15. As part of the school program, students should be involved in a variety of work experiences in the community.

16. Schools without career education do an adequate job of preparing students for careers.

17. An effective program of career education will result in more realistic career aspirations for students.

18. Infusing career education into the curriculum enhances student interest in learning.

19. An active career education program will detract from learning basic academic skills.

20. A career education program, if successful, will improve student attendance rates.

21. Career education fosters premature career decisions.

22. Schools should not be responsible for teaching students how to write a resume, how to conduct oneself in an employment interview and other job getting skills.

23. Career education is more important for the non-college bound student.

24. Few business people in this community have the time and the interest to give career-related presentations to school classes.

25. In the past, most students have made appropriate educational and career decisions without career education.

26. To infuse career education into the curriculum would foster the achievement of other instructional objectives.

27. A college degree is no longer a pre-requisite for occupational success.

28. The career of most people begins with their first paid job and ends upon retirement.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

29. Career education cannot be done effectively without the addition of new courses and new facilities to the present educational program.

30. Helping female students consider traditionally male careers is a proper role for parents but not the schools.

31. Work experience should be possible for all students not just for those in vocational programs.

32. It is important to prepare people for the unpaid work, as well as the paid work, that they will do.

33. Parents are good career education resource persons to use in the classrooms.

34. Career education is asking teachers to take on the role of the counselor.

35. Career education should be an integral part of the curriculum for all students from kindergarten through grade 12.

36. Career education is really quite different from vocational education.

37. Without an effective career education program most students, upon graduation, would lack the decisionmaking skills necessary for adapting in today's rapidly changing world.

38. One of the responsibilities of the schools is job placement for all students who desire to work.

39. Career education is just a fad.

40. "Work" and "job" really mean the same thing.

41. Rate how effective your school's program is in achieving the following objectives. (Rate each item by choosing the appropriate response from the categories listed below and write the letter corresponding to your choice on the line provided on the answer sheet.)

a. Not Effective
b. Slightly Effective
c. Moderately Effective
d. Very Effective
e. Not applicable for students in school

Our school develops students who are:

a. Competent in the basic academic skills required for adaptability in our rapidly changing society.

b. Equipped with good work habits.

c. Capable of choosing and who have chosen a personally meaningful set of work values that foster in them a desire to work.

d. Equipped with career decisionmaking skills, job hunting skills, and job getting skills.

e. Equipped with job specific occupational skills and interpersonal skills at a level that will allow them to gain entry into and attain a degree of success in the occupational society.

f. Equipped with career decisions based on the widest possible set of data concerning themselves and their educational-vocational opportunities.

g. Aware of means available to them for continuing and recurrent education once they have left the formal system of schooling.

h. Successful in being placed in a paid occupation, in further education, or in a vocation consistent with their current career education.

i. Successful in incorporating work values into their total personal value structure in such a way that they are able to choose what, for them, is a desirable lifestyle.

42. Ignoring restraints such as level of funding, please tell us what changes you would want to see instituted to improve your career education program. (Write in your answer on the lines provided on the answer sheet.)

[IF THERE ARE NO ADDITIONAL QUESTIONS PROVIDED FOR YOUR SCHOOL SYSTEM, YOU HAVE COMPLETED THIS QUESTIONNAIRE. THANK YOU VERY MUCH FOR YOUR COOPERATION.]

COUNSELOR SURVEY FORM ANSWER SHEET

Information Form

School System Name

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School Name

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Social Security Number
(Last 4 Digits Only)

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National Testing Service - National Career Education Evaluation Project

nts
NATIONAL TESTING SERVICE, INC.
1905 Chapel Hill Road
Durham, North Carolina 27707

NATIONAL CAREER EDUCATION EVALUATION PROJECT

PRINCIPAL SURVEY FORM

Dear Colleague:

The National Testing Service (NTS) of Durham, North Carolina, under contract to the U. S. Office of Education, is presently conducting a career education evaluation project. This project has two major goals: (1) to provide assistance to career education projects to help them improve their efforts at evaluation; and (2) to develop a field tested evaluation model for use throughout the nation in career education.

As part of this evaluation effort, it is necessary to collect data from major participants in the school program as to their ideas about and possible activities in career education. Data is being sought from both those who are actively involved as well as those who are not. The attached survey is designed for this purpose. We would very much appreciate it if you could take the time to complete this instrument.

Before completing the survey, there are a few important things you should know. First, there are no "right" or "wrong" answers to the many attitude and activity items in the survey. We only ask that you answer as honestly as you can, reflecting your true feelings and experience. Second, all data will be treated in strictest confidence. Data on individuals will not be reported back to your school system nor will the school system see the data before it is sent to NTS. For its part, NTS will see the data but will not have the names of any individuals who submitted it. Finally, these data will be used to prepare a report on the school system career education program as well as to test out the evaluation system for possible use in other locations around the nation. The data will not be used to evaluate individual teachers, counselors, or principals.

We very much appreciate your cooperation in this important project. We know that we are taking valuable time from your schedule, but we believe it will be time well spent both for your students and other school systems around the nation.

Thank you.

Sincerely,

A. Jackson Stenner

A. Jackson Stenner
President, National
Testing Service

PRINCIPAL SURVEY FORM

NOTE: This report is authorized by law (20 U.S.C. 1865; 45 CFR Part 160d). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

DIRECTIONS: Please write your answers on the separate answer sheet by either writing in the answer or by writing in the letter corresponding to the answer provided in this questionnaire. Thank you very much for your cooperation.

Part 1: PRINCIPAL INFORMATION FORM

School System Name (Write in on answer sheet.)

School Name (Write in on answer sheet.)

1. Your age at last birthday? (For example, if you are 32, write "32" on the answer sheet.)

2. Your sex: (Write the appropriate letter on the answer sheet.)

   a. Male
   b. Female

3. How do you describe yourself? (Write the appropriate letter on the answer sheet.)

   a. American Indian or Alaskan Native
   b. Asian or Pacific Islander
   c. Black/Negro, Not of Hispanic Origin
   d. Caucasian/White, Not of Hispanic Origin
   e. Hispanic (Mexican American, Chicano, Puerto Rican, or other Spanish culture or origin)

4. Which of the following best describes the location of this school? (Write the letter for the answer that comes closest on your answer sheet.)

   a. In a rural or farming community
   b. In a small city or town of fewer than 50,000 people that is not a suburb of a larger city
   c. In a medium-sized city (50,000-100,000)
   d. In a suburb of a medium-sized city
   e. In a large city (100,000-500,000)
   f. In a suburb of a large city
   g. In a very large city (over 500,000)
   h. In a suburb of a very large city

5. School Population: Please indicate the number of students and fulltime equivalent teachers at each of the grade levels appropriate to your school in the spaces provided on the answer sheet.

6. How many full time equivalent personnel do you have in these categories in your school? (Please write in the numbers on the line next to each letter on the answer sheet.)

   a. Counselors (guidance, counseling, and vocational)
   b. Librarians (media center resource persons)
   c. Professional support personnel (special education teachers, reading specialists, etc.)
   d. Classroom teaching aides (teaching paraprofessionals)
   e. Nonprofessional staff (media center aides, secretarial/clerical staff, etc.)

7. How many daily sessions are there in your school? (Answer for fifth or eighth or eleventh grade depending on your school by writing the letter on the answer sheet.)

   a. Single session
   b. Double sessions
   c. Other form of organization (such as overlapping sessions or triple sessions): Please specify on the answer sheet.

8. How many hours are there in one daily session in your school? (Answer for fifth or eighth or eleventh grade depending on your school.) (Write the letter corresponding to the most correct choice.)

   a. 4 hours or less
   b. 5 hours
   c. 6 hours
   d. 7 hours
   e. 8 hours
   f. More than 8 hours

9. About what percentage (to the nearest 5%) of your students are: (Percentages need not total 100%) (Write the number on the line next to the letters on the answer sheet.)

   a. On free lunch?
   b. Title I eligible?
   c. AFDC ?

10. About what percentages of the following staff personnel have been involved in staff development activities in career education since your career education program began? (Percentages need not total 100%) (Please write the number on the line next to the letters on the answer sheet.)

    a. Classroom teachers
    b. Counselors
    c. Administrators
    d. Librarians
    e. Resource teachers
    f. Paraprofessionals

11. Please indicate the sources of assistance for each of the staff development topics listed below and the time when the activities were conducted. (Write the letters corresponding to as many of the sources and times that apply to each topic on the appropriate line on the answer sheet.)

TOPIC	SOURCES	TIME
I. Career education concepts	a. College/Univ. staff	a. During school hours
II. Teaching techniques for career ed.	b. District career ed. staff	b. Before or after school hours
III. Curriculum materials for career ed.	c. State Ed. Agency staff	c. On teacher staff development days during the year
IV. Guidance/counseling in career ed.	d. People from labor or business	d. Summer or other vacation
V. Evaluation techniques in career ed.	e. Career education staff in this school	e. Weekends
VI. Using community resources in career ed.	f. Other: (Write in on answer sheet.)	f. Other: (Write in on answer sheet.)
VII. Involving parents in career ed.		
VIII. Other: (Please specify by writing in on answer sheet.)		

12. For how many occupations other than in the field of education have you studied or prepared? (Write in the appropriate letter on the answer sheet.)

    a. none
    b. one
    c. two
    d. three
    e. four or more

13. In how many occupations other than in the field of education have you been employed (excluding summer or parttime positions)? (Write in the appropriate letter on the answer sheet.)

    a. none
    b. one
    c. two
    d. three
    e. four or more

14. Do you usually work at an occupation other than in the field of education at the following times? (Write either "a" or "b" on the line next to the letter on the answer sheet.)

	YES	NO
a. in the summer	a	b
b. in the evenings during the school year	a	b
c. on the weekends during the school year	a	b

15. At the end of this school year, what will be your total number of years of experience as a principal? (For example, if you have had 12 years experience, write in "12" on the answer sheet.)

16. How often do the following people in your community get involved in the affairs of your school? (Choose the answer that comes closest to describing how frequently the people listed below are involved in the affairs of your school. Write either a, b, c, or d corresponding to your answer on the line next to the appropriate letters on the answer sheet.)

	Very Often	Occasionally	Seldom	Never
Business people	a	b	c	d
Labor representatives	a	b	c	d
Parents	a	b	c	d
Other: (Write on answer sheet.)	a	b	c	d

17. What is the approximate average daily percentage attendance of students in your school? (For example, if the answer is 47%, write "47" on the answer sheet.)

18. About what is the yearly student mobility rate (or normal attrition rate) for your school, excluding dropouts? (For example, if the answer is 47%, write "47" on the answer sheet.)

19. Which one of the following statements best describes the current position of your school on the career education concept? (Write the appropriate letter on the answer sheet.)

    a. The concept of career education is being actively implemented.
    b. The concept of career education has been approved by the school but has not yet been implemented.
    c. The concept of career education is under discussion but no formal position has been taken by the school.
    d. The concept of career education was considered and rejected as inappropriate for the school.
    e. The concept of career education has not been considered at the school.

20. Which one of the following statements best describes your own understanding of the concept of career education? (Write the appropriate letter on the answer sheet.)

    a. I feel I have a full understanding of the concept of career education.
    b. I feel I have only a partial understanding of the career education concept.
    c. I feel I do not understand the career education concept.

21. Which one of the following best describes how adequately you are prepared for the implementation of a career education program? (Write in the appropriate letter on the answer sheet.)

    a. adequately prepared
    b. moderately prepared
    c. slightly prepared
    d. not prepared

22. Based on your understanding of the concept of career education how much would you say you agree with the goals and objectives of career education? (Write in the one appropriate letter on the answer sheet.)

    a. Strongly agree with the goals of career education.
    b. Agree with the goals of career education.
    c. Disagree with the goals of career education.
    d. Strongly disagree with the goals of career education.
    e. Have no understanding of the goals of career education.

23. How frequently do faculty meetings concerned with career education take place in your school? (Write in the one appropriate letter on the answer sheet.)

    a. At least once a week
    b. Two or three times a month
    c. Once a month
    d. Less than once a month
    e. Never
    f. Does not apply

24. Who first suggested that your school implement a career education program? (Write in the one appropriate letter on the answer sheet.)

    a. Principal or other building administrator from this school
    b. Teachers in your school
    c. Other professional staff in your school besides administrators or teachers
    d. Local district career education staff
    e. Other local district staff
    f. College or university personnel
    g. State education agency personnel
    h. Other: (Write in on the answer sheet.)
    i. Don't know
    j. Does not apply

25. How would you rate the general level of staff morale (or "esprit de corps") of the professional staff in your school? (Write in the letter corresponding to the answer that comes closest to your impressions on the answer sheet.)

    a. Very high morale among most of staff
    b. High morale among most of staff
    c. Mixed - some high morale, some low morale
    d. Low morale among most of staff
    e. Very low morale among most of staff

THE NEXT TWO QUESTIONS ARE FOR HIGH SCHOOL PRINCIPALS ONLY - OTHERS GO ON TO PART 2 ON PAGE 10.

26. What is the approximate percentage of students who enter your school that will drop out before graduation? (Do not include students who transfer to another school.) (For example, if the answer is 22%, write in 22 on the answer sheet.)

27. About what percentage of this year's graduating class will spend the largest share of their time next year doing each of the following things? (Percentages should total 100%.) (Write in the number on the line next to the letters on the answer sheet.)

a. Working fulltime ___%
b. Entering an appreticeship or on-the-job training program ___%
c. Going into regular military service (or service academy) ___%
d. Being a fulltime homemaker ___%
e. Taking vocational or technical courses at a trade or business school ___%
f. Taking mostly academic courses at a community or junior college ___%
g. Taking mostly vocational or technical courses at a junior or community college ___%
h. Attending a four year college or university ___%
i. Working parttime, but not attending school or college ___%
j. Other (travel, take a break, no idea) ___%

Part 2: ACTIVITIES SECTION

For each of the activities listed below, please indicate how frequently you conduct or actively participate in the activity. Write on the line next to the number on the answer sheet the letter corresponding to how frequently you conduct or actively participate in the activity.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

1. Take part in developing career education curriculum units and materials for myself or others.
2. Team with other professional staff in the school to present career-oriented activities in the classroom.
3. Team with career education project staff to present career-oriented activities to students.
4. Help plan and coordinate a career education fair for students.
5. Serve as liaison between the school and people in business, labor, and industry to organize field trips, shadowing (following and observing workers), or other kinds of work experiences for students in this school.
6. Actively assist in the occupational placement of school leavers.
7. Conduct systematic follow-up studies of former students to determine how well the school helped them learn about and prepare for work.
8. Use people in the business, labor, and industry community to assist in parttime and fulltime job placement programs.
9. Help place students in parttime work (paid or unpaid) while they are still in school or during vacation periods.
10. Speak to parents and other community groups about the importance of career education.
11. Conduct staff meetings to plan career education activities for the school.
12. Participate, on a career education advisory or other group, with members of the business-labor-industry community in designing a career education program for the school.

a. almost every day
b. once a week
c. once or twice a month
d. less than once a month
e. never
f. does not apply to my role in this school

13. Schedule time for school staff to learn about and plan for career education.

14. Develop a list of community members who could be used as career education resource persons in the classroom.

15. Communicate the school's career education program to parents and the business-labor-industry community.

16. Serve as an instructor in career education inservice training for school staff.

17. Help academic and vocational teachers in the school meet to identify ways they can cooperate in the career education program.

18. Interpret career education evaluation data to others in the school.

19. Request funds to implement the school career education program.

20. Please indicate the type of career education staff development you have received. Staff development focused on: (Write in the letters on the answer sheet for as many as apply.)

    a. Career education concepts
    b. Teaching techniques in career education
    c. Curriculum materials for career education
    d. Guidance/counseling techniques in career education
    e. Evaluation techniques in career education
    f. Using community resources in career education
    g. Involving parents in career education
    h. Other: (Please write in on the answer sheet.)

21. How many hours, in total, have you participated in career education staff development activities since you began your involvement in career education? (For example, if you have participated in 10 hours of training, write "10" in the space on the answer sheet.)

Part 3: OPINION SECTION

Please indicate your response to each of the following statements by writing in the letter corresponding to your opinion next to the appropriate number on the answer sheet.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

1. Too many students leave our schools lacking the work habits necessary for making a successful transition from school to work.

2. It is not an appropriate role of the school to ask the home and family to provide career-oriented activities for their children.

3. Training in career education should be required for certification of education personnel.

4. Classroom teachers have a responsibility to help students gain an appreciation of the value and importance of work.

5. Elementary school is too early for students to start thinking about career possibilities.

6. Active participation in a career education program will enhance a teacher's overall teaching effectiveness.

7. The relationships between education and work can be most meaningfully taught as a separate course.

8. A career education program does not change the role of the counselor.

9. Career education will have little effect on the career aspirations of students compared with the effect of their socio-economic status.

10. Accomplishment through a paid occupation is necessary in order to gain in personal understanding and have a positive self-concept.

11. Helping minority students enter occupations not traditionally held by members of their race can be an important outcome of career education.

12. Business and labor representatives should advise educators about school programs, but it is not appropriate for these lay persons to participate in joint decisionmaking with educators.

13. It does not take a lot of money to begin implementing career education.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

14. It is hard to be happy if one cannot find meaning in the work that one does.

15. As part of the school program, students should be involved in a variety of work experiences in the community.

16. Schools without career education do an adequate job of preparing students for careers.

17. An effective program of career education will result in more realistic career aspirations for students.

18. Infusing career education into the curriculum enhances student interest in learning.

19. An active career education program will detract from learning basic academic skills.

20. A career education program, if successful, will improve student attendance rates.

21. Career education fosters premature career decisions.

22. Schools should not be responsible for teaching students how to write a resume, how to conduct oneself in an employment interview and other job getting skills.

23. Career education is more important for the non-college bound student.

24. Few business people in this community have the time and the interest to give career-related presentations to school classes.

25. In the past, most students have made appropriate educational and career decisions without career education.

26. To infuse career education into the curriculum would foster the achievement of other instructional objectives.

27. A college degree is no longer a pre-requisite for occupational success.

28. The career of most people begins with their first paid job and ends upon retirement.

a. Strongly Disagree
b. Disagree
c. Agree
d. Strongly Agree

29. Career education cannot be done effectively without the addition of new courses and new facilities to the present educational program.

30. Helping female students consider traditionally male careers is a proper role for parents but not the schools.

31. Work experience should be possible for all students not just for those in vocational programs.

32. It is important to prepare people for the unpaid work, as well as the paid work, that they will do.

33. Parents are good career education resource persons to use in the classrooms.

34. Career education is asking teachers to take on the role of the counselor.

35. Career education should be an integral part of the curriculum for all students from kindergarten through grade 12.

36. Career education is really quite different from vocational education.

37. Without an effective career education program most students, upon graduation, would lack the decisionmaking skills necessary for adapting in today's rapidly changing world.

38. One of the responsibilities of the schools is job placement for all students who desire to work.

39. Career education is just a fad.

40. "Work" and "job" really mean the same thing.

41. Rate how effective your school's program is in achieving the following objectives. (Rate each item by choosing the appropriate response from the categories listed below and write the letter corresponding to your choice on the line provided on the answer sheet.)

a. Not Effective
b. Slightly Effective
c. Moderately Effective
d. Very Effective
e. Not applicable for students in school

Our school develops students who are:

a. Competent in the basic academic skills required for adaptability in our rapidly changing society.

b. Equipped with good work habits.

c. Capable of choosing and who have chosen a personally meaningful set of work values that foster in them a desire to work.

d. Equipped with career decisionmaking skills, job hunting skills, and job getting skills.

e. Equipped with job specific occupational skills and interpersonal skills at a level that will allow them to gain entry into and attain a degree of success in the occupational society.

f. Equipped with career decisions based on the widest possible set of data concerning themselves and their educational-vocational opportunities.

g. Aware of means available to them for continuing and recurrent education once they have left the formal system of schooling.

h. Successful in being placed in a paid occupation, in further education, or in a vocation consistent with their current career education.

i. Successful in incorporating work values into their total personal value structure in such a way that they are able to choose what, for them, is a desirable lifestyle.

42. Ignoring restraints such as level of funding, please tell us what changes you would want to see instituted to improve your career education program. (Write in your answer on the lines provided on the answer sheet.)

[IF THERE ARE NO ADDITIONAL QUESTIONS PROVIDED FOR YOUR SCHOOL SYSTEM, YOU HAVE COMPLETED THIS QUESTIONNAIRE. THANK YOU VERY MUCH FOR YOUR COOPERATION.]

PRINCIPAL SURVEY FORM ANSWER SHEET

Information Form

School System Name

____

School Name

____

1. ____
2. ____
3. ____
4. ____

5. Grade	Students	Teachers
a. K	____	____
b. 1	____	____
c. 2	____	____
d. 3	____	____
e. 4	____	____
f. 5	____	____
g. 6	____	____
h. 7	____	____
i. 8	____	____
j. 9	____	____
k. 10	____	____
l. 11	____	____
m. 12	____	____

6. a. ____
   b. ____
   c. ____
   d. ____
   e. ____

7. ____

8. ____

9. a. ____%
   b. ____%
   c. ____%

10. a. ____%
    b. ____%
    c. ____%
    d. ____%
    e. ____%
    f. ____%

11. Topic	Sources	Times
I	____	____
II	____	____
III	____	____
IV	____	____
V	____	____
VI	____	____
VII	____	____
VIII	____	____

12. ____

13. ____

14. a. ____
    b. ____
    c. ____

15. ____

16. a. ____
    b. ____
    c. ____
    d. ____

17. ____%

18. ____%

19. ____

20. ____

21. ____

22. ____

23. ____

24. ____

25. ____

(High School)

26. ____

27. a. ____%
    b. ____%
    c. ____%
    d. ____%
    e. ____%
    f. ____%
    g. ____%
    h. ____%
    i. ____%
    j. ____%

Activities Section

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____
7. ____
8. ____
9. ____
10. ____
11. ____
12. ____
13. ____
14. ____
15. ____
16. ____
17. ____
18. ____
19. ____
20. ____

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21. ____

Opinion Section

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____
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10. ____
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12. ____
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34. ____
35. ____
36. ____
37. ____
38. ____
39. ____
40. ____

41a. ____
41b. ____
41c. ____
41d. ____
41e. ____
41f. ____
41g. ____
41h. ____

42. ________________

____

____

____

43. ____
44. ____
45. ____
46. ____

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National Testing Service - National Career Education Evaluation Project

APPENDIX B.3

OUTCOME INSTRUMENTATION

APPENDIX B.3

OUTCOME INSTRUMENTATION

All outcome instruments used in this study, with the exception of the achievement tests used by particular projects, are included in this section of the appendix. These include the following:

1. *Self Observation Scale (SOS)*
    - *Intermediate*
    - *Junior*
    - *Senior*
2. *Program of Exploration in Career Education Knowledge Test (PECE)*
3. *New Mexico Career Education Test Series*
    - *NM 5001*
    - *NM 5002*
    - *NM 5006*
    - *NM 5007*
    - *NM 5008*
4. *Ohio Career Development Test Series*
    - *Ohio 6*
    - *Ohio 8*
    - *Ohio 10*

Volume III of this report, *The Career Education Instrumentation Substudy*, presents a detailed discussion of the construct definition and validation efforts used by NTS with these instruments. A brief presentation can be found in Chapter 2 of this report.

Characteristics of Student Learner Outcome Instruments

Instrument	Respondent Grades	# of Items	Item Types	Typical Item (s)	Administration Time (minutes)	Publisher
SELF OBSERVATION SCALE (SOS)						
• Intermediate	5	60	yes/no	• I think most people want to help me. • I often volunteer in school	30	NTS
• Junior	8	72	yes/no	• I worry quite a bit over possible troubles. • I do a lot of things very well	30	NTS
• Senior	11	72	yes/no	• Other students look to me for leadership • Compared to one year ago, I worry more.	30	NTS
PROGRAM OF EXPLORATION IN CAREER EDUCATION KNOWLEDGE TEST (PECE)	5,8,11	75	19 matching 27 T/F 29 multiple choice	• When choosing an occupation a person should be concerned for himself, as well as society as a whole (T/F) • The "employment outlook" for an occupation refers to: a. demand for workers b. where workers are located c. where workers are expected to be located in the future d. all of the above	60	Georgia State Dept. of Vocational Education
NEW MEXICO CAREER EDUCATION TEST SERIES						
• NM 5001	5,8,11	25	Four-point Likert Type Opinion Items	Some jobs allow people to use their creativity a. strongly agree b. agree c. disagree d. strongly disagree	15	Westinghouse Learning Corporation
• NM 5002	11	20	multiple choice	Suppose you wanted to become a member of the local police force. Which of the following would be the best source of information to find out about job requirements and duties? a. retired policeman c. local employment agency b. the chief of police d. mayor and town council	15	Westinghouse Learning Corporation
• NM 5006	8,11	20	multiple choice	Which one of the following activities would BEST help you become a good librarian? a. library aide c. English Club member b. cheerleader d. Library Club member	15	Westinghouse Learning Corporation
• NM 5007	11	20	multiple choice	When you are filling out an application blank, you should write "n/a" a. in blanks for which you don't know the answer b. in blanks for questions which don't apply to you c. in no blanks on the form d. in any blanks marked "for office use only."	15	Westinghouse Learning Corporation
• NM 5008	11	25	multiple choice	Toni is a policewoman. She would like to advance in her department. Which of the following is LEAST likely to help her advance? a. hope that she is lucky b. be punctual and cooperative on the job c. be pleasant to the people in her patrol area d. take police science courses after work	20	Westinghouse Learning Corporation
OHIO CAREER DEVELOPMENT TEST SERIES						
• Ohio 6	5	60	40 multiple choice 20 agree/disagree	• A store manager a. makes things to sell b. sweeps the floor c. supervises employees d. belongs to the Chamber of Commerce • I like to hear about the work people do (A/D)	40	Policy Studies in Education
• Ohio 8	8	68	34 multiple choice 34 agree/disagree	• When a car salesperson sells a car he or she is usually paid a. a salary b. a commission c. a wage d. a voucher • A career is the same thing as a job (A/D)	40	Policy Studies in Education
• Ohio 10	11	68	34 multiple choice 34 agree/disagree	• A brief outline of your training and work experience is called a. a biography b. an application c. a resume d. a covering letter • High school business programs are only for women (A/D)	40	Policy Studies in Education

SELF OBSERVATION SCALES (SOS)

W. G. Katzenmeyer and A. Jackson Stenner

INTERMEDIATE LEVEL
Form C

IMPORTANT DIRECTIONS FOR MARKING THIS SHEET

Use black lead pencil only (No. 2 or No. 2½).
Do NOT use ink or ballpoint pen.
Make heavy black marks that fill the circle completely.
Erase cleanly any response you wish to change.
Make no stray marks on this sheet.
Answer each item Yes or No.
Complete the information section on the back of this sheet as directed.

IMPROPER MARKS
⊘○ ○⊠ ○◉

PROPER MARKS
●○ ○● ●○

DO NOT MARK ABOVE THIS LINE

1. I am about as nervous as other people. Ⓨ Ⓝ
2. I would change schools if I could. Ⓨ Ⓝ
3. I often feel angry for no special reason. Ⓨ Ⓝ
4. I usually like my teachers. Ⓨ Ⓝ
5. I worry quite a bit over possible troubles. Ⓨ Ⓝ
6. My teachers listen to what I have to say. Ⓨ Ⓝ
7. I like to play only when I'm the leader. Ⓨ Ⓝ
8. Other children are often mean to me. Ⓨ Ⓝ
9. The other children in my class are not friendly toward me. Ⓨ Ⓝ
10. I always have to be boss. Ⓨ Ⓝ
11. I am easy to like. Ⓨ Ⓝ
12. I like to do school work at home in the evening. Ⓨ Ⓝ
13. My feelings are hurt more easily than most people's. Ⓨ Ⓝ
14. My teachers make sure I always understand what they want me to do. Ⓨ Ⓝ
15. I can only do my work if someone helps me. Ⓨ Ⓝ
16. I feel good when I'm at school. Ⓨ Ⓝ
17. My teachers like to help me. Ⓨ Ⓝ
18. I am a happy person. Ⓨ Ⓝ
19. I don't like most of the children in my class. Ⓨ Ⓝ
20. Grownups are often glad to help me. Ⓨ Ⓝ
21. At times I have been worried beyond reason about something that really didn't matter. Ⓨ Ⓝ
22. My teachers are mean. Ⓨ Ⓝ
23. I think most people want to help me. Ⓨ Ⓝ
24. I am a very nervous person. Ⓨ Ⓝ
25. When I do something wrong, my teachers correct me without hurting my feelings. Ⓨ Ⓝ
26. I often volunteer in school. Ⓨ Ⓝ
27. I want to be a very good student. Ⓨ Ⓝ
28. I can give a good report in front of the class. Ⓨ Ⓝ
29. I like my teachers. Ⓨ Ⓝ
30. I don't have many friends. Ⓨ Ⓝ

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NCS Trans-Optic F3122-54321

STUDENT I.D.

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

SPECIAL CODES

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

GRADE ④ ⑤ ⑥ ⑦ ⑧ Ⓤ

SEX Ⓜ Ⓕ

STUDENT NAME

○ Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ Ⓚ Ⓛ Ⓜ Ⓝ Ⓞ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ

31. At school other people really care about me. Ⓨ Ⓝ
32. I am proud of my school work. Ⓨ Ⓝ
33. School work helps me to learn. Ⓨ Ⓝ
34. It is hard for me to make friends. Ⓨ Ⓝ
35. I am a good person. Ⓨ Ⓝ
36. Usually I like to be with other children. Ⓨ Ⓝ
37. I can't be depended on. Ⓨ Ⓝ
38. Each morning I look forward to coming to school. Ⓨ Ⓝ
39. Most things are too hard to do. Ⓨ Ⓝ
40. I like to have my teachers ask me questions. Ⓨ Ⓝ
41. I am slow in finishing school work. Ⓨ Ⓝ
42. People are always picking on me. Ⓨ Ⓝ
43. I am a cheerful person. Ⓨ Ⓝ
44. My teachers do not give me enough time to finish my work. Ⓨ Ⓝ
45. I like to see other children happy. Ⓨ Ⓝ
46. At times I lose sleep over worry. Ⓨ Ⓝ
47. I like to learn about new things. Ⓨ Ⓝ
48. I often find myself worrying about something. Ⓨ Ⓝ
49. I like to stay home from school. Ⓨ Ⓝ
50. I am lonely very often. Ⓨ Ⓝ
51. My teachers are not very friendly with the children. Ⓨ Ⓝ
52. I make mistakes most of the time when I try to do things. Ⓨ Ⓝ
53. Most of the time I feel sorry for someone who is hurt. Ⓨ Ⓝ
54. My classmates like me. Ⓨ Ⓝ
55. Most people are much better liked than I am. Ⓨ Ⓝ
56. I like school better than my friends do. Ⓨ Ⓝ
57. I often worry about what other children think of me. Ⓨ Ⓝ
58. I would rather get books for my birthday than toys or clothes. Ⓨ Ⓝ
59. I am among the last to be chosen for teams. Ⓨ Ⓝ
60. I am fun to be with. Ⓨ Ⓝ

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SELF OBSERVATION SCALES (SOS)

W. G. Katzenmeyer and A. Jackson Stenner

JUNIOR HIGH LEVEL
FORM C

IMPORTANT DIRECTIONS FOR MARKING THIS SHEET

Use black lead pencil only (No. 2 or No. 2½).
Do NOT use ink or ballpoint pen.
Make heavy black marks that fill the circle completely.
Erase cleanly any response you wish to change.
Make no stray marks on this sheet.
Answer each item Yes or No.
Complete the information section on the back of this sheet as directed.

IMPROPER MARKS	PROPER MARKS
ø○ ○⊗ ○◎	●○ ○● ●○

DO NOT MARK ABOVE THIS LINE

1. My teachers make sure I always understand what they want me to do. Ⓨ Ⓝ
2. My teachers expect too much of me. Ⓨ Ⓝ
3. I can be depended on. Ⓨ Ⓝ
4. I worry about my school performance. Ⓨ Ⓝ
5. I am proud of most things I do. Ⓨ Ⓝ
6. I like my teachers. Ⓨ Ⓝ
7. Compared to one year ago, I worry more. Ⓨ Ⓝ
8. Almost all my teachers are very good. Ⓨ Ⓝ
9. I enjoy talking in front of a group of people. Ⓨ Ⓝ
10. I am proud of my school. Ⓨ Ⓝ
11. When I look in the mirror I like what I see. Ⓨ Ⓝ
12. I am slower than most people in learning new things. Ⓨ Ⓝ
13. At times I have been worried beyond reason about something that really didn't matter. Ⓨ Ⓝ
14. I worry quite a bit over possible troubles. Ⓨ Ⓝ
15. My teachers listen to what I have to say. Ⓨ Ⓝ
16. I can give a good report in front of the class. Ⓨ Ⓝ
17. I have a good memory. Ⓨ Ⓝ
18. In discussions with my friends, my point of view usually wins. Ⓨ Ⓝ
19. Most of my friends don't care what I think. Ⓨ Ⓝ
20. I am considered to be a leader by my friends. Ⓨ Ⓝ
21. At times I lose sleep over worry. Ⓨ Ⓝ
22. I don't have many friends. Ⓨ Ⓝ
23. If people knew what I'm really like, they would steer clear of me. Ⓨ Ⓝ
24. I feel good when I'm at school. Ⓨ Ⓝ
25. When I do something wrong, my teachers correct me without hurting my feelings. Ⓨ Ⓝ
26. This school is like a jail. Ⓨ Ⓝ
27. I think I will be successful in life. Ⓨ Ⓝ
28. My teachers like to help me. Ⓨ Ⓝ
29. I often worry about what other students think of me. Ⓨ Ⓝ
30. Other students look to me for leadership. Ⓨ Ⓝ
31. Most of the time I feel sorry for someone who is hurt. Ⓨ Ⓝ
32. Most mornings I look forward to going to school. Ⓨ Ⓝ
33. I try to help new students feel welcome. Ⓨ Ⓝ
34. I like school better than I used to. Ⓨ Ⓝ
35. I do a lot of things very well. Ⓨ Ⓝ
36. I often find myself worrying about something. Ⓨ Ⓝ

NCS Trans-Optic F3148-54321

STUDENT I.D.

SPECIAL CODES

GRADE ⑥ ⑦ ⑧ ⑨ ⑩ Ⓤ

SEX Ⓜ Ⓕ

STUDENT NAME

37. I like teaching little children. Ⓨ Ⓝ
38. I like to learn about new things. Ⓨ Ⓝ
39. I am the type who has few close friends. Ⓨ Ⓝ
40. I like to stay home from school. Ⓨ Ⓝ
41. Compared to one year ago, I have more friends. Ⓨ Ⓝ
42. I usually like my teachers. Ⓨ Ⓝ
43. I make friends easily. Ⓨ Ⓝ
44. Other students are usually fair to me. Ⓨ Ⓝ
45. I am a cheerful person. Ⓨ Ⓝ
46. I am fun to be with. Ⓨ Ⓝ
47. My teachers are not very friendly with students. Ⓨ Ⓝ
48. I am considered to be a leader by my teachers. Ⓨ Ⓝ
49. It is hard for me to make friends. Ⓨ Ⓝ
50. I would change school if I could. Ⓨ Ⓝ
51. I don't like most of the students in my class. Ⓨ Ⓝ
52. Younger kids usually bore me. Ⓨ Ⓝ
53. Most teachers treat students poorly. Ⓨ Ⓝ
54. At school other people really care about me. Ⓨ Ⓝ
55. I am proud of my school work. Ⓨ Ⓝ
56. School frequently keeps me from doing what I want to do. Ⓨ Ⓝ
57. People who are like me don't have a good chance to be successful. Ⓨ Ⓝ
58. School is a big hassle. Ⓨ Ⓝ
59. Other students look to me for ideas. Ⓨ Ⓝ
60. I am a good student. Ⓨ Ⓝ
61. I can count on my friends when I'm in trouble. Ⓨ Ⓝ
62. I am easy to like. Ⓨ Ⓝ
63. I am not too crazy about little children. Ⓨ Ⓝ
64. I like school better than my friends do. Ⓨ Ⓝ
65. Most people that are successful have been lucky. Ⓨ Ⓝ
66. I worry about losing my friends. Ⓨ Ⓝ
67. Most things are too hard to do. Ⓨ Ⓝ
68. I can't be depended on. Ⓨ Ⓝ
69. I have several friends whom I trust almost completely. Ⓨ Ⓝ
70. I am not a very happy person. Ⓨ Ⓝ
71. I worry a lot about school work. Ⓨ Ⓝ
72. I try to avoid hurting other people's feelings. Ⓨ Ⓝ

SELF OBSERVATION SCALES (SOS)

W. G. Katzenmeyer and A. Jackson Stenner

SENIOR HIGH LEVEL
FORM C

IMPORTANT DIRECTIONS FOR MARKING THIS SHEET

Use black lead pencil only (No. 2 or No. 2½).
Do NOT use ink or ballpoint pen.
Make heavy black marks that fill the circle completely.
Erase cleanly any response you wish to change.
Make no stray marks on this sheet.
Answer each item Yes or No.
Complete the information section on the back of this sheet as directed.

IMPROPER MARKS	PROPER MARKS
✓○ ○☒ ○◉	●○ ○● ●○

DO NOT MARK ABOVE THIS LINE

---

1. My teachers make sure I always understand what they want me to do. Ⓨ Ⓝ
2. I can talk about my feelings with my friends. Ⓨ Ⓝ
3. Despite the usual problems, I am generally very happy. Ⓨ Ⓝ
4. My teachers expect too much of me. Ⓨ Ⓝ
5. I worry about my school performance. Ⓨ Ⓝ
6. I am proud of most things I do. Ⓨ Ⓝ
7. I feel left out a lot. Ⓨ Ⓝ
8. I like my teachers. Ⓨ Ⓝ
9. Compared to one year ago, I worry more. Ⓨ Ⓝ
10. Almost all my teachers are very good. Ⓨ Ⓝ
11. I enjoy talking in front of a group of people. Ⓨ Ⓝ
12. I am proud of my school. Ⓨ Ⓝ
13. At times I have been worried beyond reason about something that really didn't matter. Ⓨ Ⓝ
14. My teachers listen to what I have to say. Ⓨ Ⓝ
15. I can give a good report in front of the class. Ⓨ Ⓝ
16. I worry quite a bit over possible troubles. Ⓨ Ⓝ
17. In discussions with my friends, my point of view usually wins. Ⓨ Ⓝ
18. This school is like a jail. Ⓨ Ⓝ
19. I am considered to be a leader by my friends. Ⓨ Ⓝ
20. At times I lose sleep over worry. Ⓨ Ⓝ
21. I don't have many friends. Ⓨ Ⓝ
22. If people knew what I'm really like, they would steer clear of me. Ⓨ Ⓝ
23. I feel good when I'm at school. Ⓨ Ⓝ
24. Most of my friends don't care what I think Ⓨ Ⓝ
25. When I do something wrong, my teachers correct me without hurting my feelings. Ⓨ Ⓝ
26. I think I will be successful in life. Ⓨ Ⓝ
27. My teachers like to help me. Ⓨ Ⓝ
28. I often worry about what other students think of me. Ⓨ Ⓝ
29. Other students look to me for leadership. Ⓨ Ⓝ
30. Most mornings I look forward to going to school. Ⓨ Ⓝ
31. I try to help new students feel welcome. Ⓨ Ⓝ
32. I like school better than I used to. Ⓨ Ⓝ
33. I often find myself worrying about something. Ⓨ Ⓝ
34. I like teaching little children. Ⓨ Ⓝ
35. I like to have my teachers ask me questions. Ⓨ Ⓝ
36. I am the type who has few close friends. Ⓨ Ⓝ

NCS Trans-Optic F3149-54321

STUDENT I.D.

SPECIAL CODES

GRADE ⑨ ⑩ ⑪ ⑫ Ⓤ

SEX Ⓜ Ⓕ

STUDENT NAME

37. I like to stay home from school. Ⓨ Ⓝ
38. People listen to what I have to say. Ⓨ Ⓝ
39. I usually like my teachers. Ⓨ Ⓝ
40. I make friends easily. Ⓨ Ⓝ
41. My feelings are hurt more easily than most people. Ⓨ Ⓝ
42. I am a cheerful person. Ⓨ Ⓝ
43. I am fun to be with. Ⓨ Ⓝ
44. My teachers are not very friendly with students. Ⓨ Ⓝ
45. I am considered to be a leader by my teachers. Ⓨ Ⓝ
46. I am a happy person. Ⓨ Ⓝ
47. It is hard for me to make friends. Ⓨ Ⓝ
48. I would change schools if I could. Ⓨ Ⓝ
49. I don't like most of the students in my class. Ⓨ Ⓝ
50. I have more fears than most people. Ⓨ Ⓝ
51. Younger kids usually bore me. Ⓨ Ⓝ
52. Most teachers treat students poorly. Ⓨ Ⓝ
53. At school other people really care about me. Ⓨ Ⓝ
54. I am proud of my school work. Ⓨ Ⓝ
55. School frequently keeps me from doing what I want to do. Ⓨ Ⓝ
56. People who are like me don't have a good chance to be successful. Ⓨ Ⓝ
57. School is a big hassle. Ⓨ Ⓝ
58. Other students look to me for ideas. Ⓨ Ⓝ
59. I am a good student. Ⓨ Ⓝ
60. I can count on my friends when I'm in trouble. Ⓨ Ⓝ
61. I am easy to like. Ⓨ Ⓝ
62. I am not too crazy about little children. Ⓨ Ⓝ
63. I like school better than my friends do. Ⓨ Ⓝ
64. Compared to one year ago, I'm happier. Ⓨ Ⓝ
65. Most people that are successful have been lucky. Ⓨ Ⓝ
66. I worry about losing my frien[illegible] Ⓨ Ⓝ
67. Most people are much better liked than I am. Ⓨ Ⓝ
68. Most things are too hard to do. Ⓨ Ⓝ
69. I can't be depended on. Ⓨ Ⓝ
70. I have several friends whom I trust almost completely. Ⓨ Ⓝ
71. I am not a very happy person. Ⓨ Ⓝ
72. I worry a lot about school work. Ⓨ Ⓝ

P.E.C.E. KNOWLEDGE TEST

PLEASE DO NOT MARK ON ANY OF THE PAGES OF THIS TEST.

Be sure that the space you are marking on your answer sheet corresponds to the question you are answering.

MATCHING SECTION

In questions 1-7 you are to match the occupations listed with the level of the school most suited to the job.

Occupation	School
1. Secretary	A. Junior College (2 Year)
2. Dietitian	B. Vocational Technical School
3. Fork-Lift Truck Operator	C. College (4 Year)
4. Carpenter	D. High School
5. Auto Mechanic	
6. Cashier	
7. Hair Stylist	

In questions 8-13 you are to match the occupations listed with the school courses more closely related to the job.

Occupation	Courses of Study
8. Medical Lab Technician	A. Math, drafting, geometry
9. Engineer	B. Industrial arts, shop or basic math
10. Bookkeeper	C. Science and biology
11. Assembly Line Worker	D. Business and office subjects
12. Politician	
13. Auto Mechanic	

Be sure that the space you are marking on your answer sheet corresponds to the question you are answering.

GO ON TO THE NEXT PAGE

In questions 14-19 you are to match the occupations with the occupational groups to which they belong.

Occupation

14. Aviation Mechanic
15. Realtor
16. Assembly Line Worker
17. Hostess
18. Typist
19. Barber

Occupational Grouping

A. Fixing things
B. Producing things
C. Service to others
D. Outdoors
E. Business and sales

TRUE-FALSE SECTION

Statements 20-46 are true or false. If you think the statement is true mark A on your answer sheet. If you think the statement is false mark B on your answer sheet.

20. In selecting an occupation, a person should consider the economic and social rewards of the occupations under consideration.

21. Society benefits from jobs that are considered undesirable by most people.

22. Training takes place only before entering an occupation--not for advancement within that occupation.

23. When choosing an occupation a person should be concerned for himself, as well as society as a whole.

REMEMBER: IF TRUE MARK A. IF FALSE MARK B.

24. People in certain occupational groups have distinct styles of living.

25. In today's society, a person should go to college and then decide what occupation he plans to follow.

26. The work that women do is valuable to our society.

27. A person with high abilities should choose an occupation which requires routine behavior rather than a variety of duties.

28. In most work situations, the person should be concerned with his own job, not that of the work team.

29. Government and the general public influence a person's work life.

GO ON TO THE NEXT PAGE

30. An employer may not fire a person because of race, sex, religion, or ability.

31. A person's occupation will sometimes determine which social clubs he will join.

32. Printed material can tell you everything about a job.

BE SURE THAT THE NUMBER OF THE SPACE YOU MARK MATCHES THE NUMBER OF THE QUESTION YOU ARE ANSWERING.

33. There exists today a need for people who can "fix" things.

34. A person can have a satisfactory work life without having attended college.

35. When a person reaches middle age he is too old to go to school again.

36. It is common for a person to have more than one kind of job in his lifetime.

37. There is only one "right" occupation for each person.

38. A person should not begin preparing for an occupation until he is out of high school.

39. Most people are not in occupations considered "glamorous."

40. A career might include a series of several jobs.

41. Some "blue collar" workers make more money than some "white collar" workers.

42. A strong interest in an occupation means that a person will be good at it.

43. A labor union looks after the needs of the workers.

44. The State Department of Labor charges a fee to find you a job.

45. When lay-offs occur in a company the person who was hired most recently has the best chance of keeping his job.

46. A person may become tense and worried in one job and yet be relaxed in another job.

GO ON TO THE NEXT PAGE

MULTIPLE CHOICE SECTION

Questions 47-75 are multiple choice and you are to choose the best answer from the four alternatives listed. Choose only one answer for each question. Be sure to mark the space on the answer sheet which corresponds to the question you are answering.

47. When selecting an occupation or career, a person should consider which of the following factors?

    A. Will this occupation permit me to express my personality?
    B. Will I be happy in this occupation?
    C. Will I earn enough money to provide for my family?
    D. All of the above.

48. After a person takes a thorough inventory of his capabilities, he:

    A. Will find only one occupation in which he can use those capabilities.
    B. Will be ready to decide on a particular occupation.
    C. May choose an occupation and alter his capabilities to fit the occupation.
    D. May find several occupations in which he may be able to use his capabilities.

49. The school guidance counselor may:

    A. Interpret standard test scores for a student.
    B. Listen to a student's personal problem.
    C. Help the student find information about a job.
    D. All of the above.

50. Which of the following should be least important in choosing the first job?

    A. Chances for advancement and promotion.
    B. Beginning salary.
    C. Job satisfaction.
    D. Ability to do a good job.

51. In completing an application for a job, which of the following is least important?

    A. Read the application completely to be sure you understand it.
    B. Give your nickname so the employer will know what to call you.
    C. Print or type all the information requested.
    D. Fill in all the blanks possible.

GO ON TO THE NEXT PAGE

52. Printed information about occupations and careers:

    A. Is always accurate and up-to-date.
    B. Should be studied to determine if it is accurate and up-to-date.
    C. Is always inaccurate and outdated.
    D. Is of no value in learning about occupations and careers.

53. If a person were interested in inventing things at home while working on another job, he should:

    A. Be aware of "moonlighting" biases.
    B. Know his company's rules, policies and expectations concerning inventions by employees.
    C. Invent things that would be useful for his company.
    D. Draw overtime pay for work after hours.

54. If a person thinks of himself as a "shy" person, which of the following would probably be an undesirable occupation?

    A. Insurance salesman
    B. Brickmason
    C. Carpenter
    D. Farmer

55. Which of the following persons would have least authority in his job?

    A. Bank president
    B. School principal
    C. Teacher
    D. Plant manager

56. A company Organizational Chart:

    A. Is used to show workers how to carry out their jobs in the company.
    B. Is used to show lines of authority within the company.
    C. Is an alphabetical listing of all employees in the company.
    D. Is a map showing the locations of other offices in the company.

57. Man maintains his environment by:
    A. Study
    B. Work
    C. Physical Strength
    D. Intelligence

GO ON TO THE NEXT PAGE

58. The first thing a person who wants to establish a manufacturing business should ask himself is:

A. Are there enough workers to operate the equipment?
B. Do I have enough money to begin production?
C. Is there a good market for my product?
D. How cheaply can I sell my product?

59. In what way is a person who does not work a "drag" on society?

A. He might be supported by taxes.
B. He would mean one less person in the labor force.
C. To a certain degree, all workers are dependent on other workers.
D. A combination of the above.

60. In making career plans, which of the following is least important?

A. The changing nature of work roles due to technology and automation.
B. Personal abilities.
C. Money necessary for education and training.
D. The number of employees already in that particular work role.

61. When an employer has many applications for a particular job, he usually will pick the applicant who has:

A. The most education.
B. The best qualifications for the job.
C. The greatest economic need.
D. The greatest mental ability.

62. On the job, we must be sensitive to the needs of various people. Of the following, whose needs should be considered?

A. Our own
B. Our fellow worker
C. The employer
D. All of the above

63. To become a Registered Nurse a person may:

A. Complete two years of special junior college training.
B. Attend a three-year hospital school of nursing.
C. Obtain a four-year college nursing degree.
D. Do any of the above.

GO ON TO THE NEXT PAGE

64. An engineer usually has:

    A. A high school diploma.
    B. One or two years of junior college or vocational technical school.
    C. Four or five years of college.
    D. A high school diploma with courses in industrial arts and mechanical drawing.

65. An electronics technician usually has at least:

    A. A high school diploma.
    B. One or two years of postsecondary vocational technical education.
    C. Four or five years of college.
    D. An engineering degree.

66. Which of the following occupations are most held by women?

    A. Teachers and accountants.
    B. Accountants and school counselors.
    C. Dietitians and cooks.
    D. Teachers and nurses.

67. Which of the following best describes initiative?

    A. Ability to "stick to it."
    B. Never do more than required.
    C. Ability to see what needs to be done and doing it.
    D. A combination of trustworthiness and dependability.

68. The "employment outlook" of an occupation refers to:

    A. The demand for workers.
    B. Where workers are located.
    C. Where workers are expected to be located in the future.
    D. All of the above.

69. Which of the following statements is true?

    A. A person must choose his career by the tenth grade.
    B. A high school graduate must have chosen his occupation.
    C. The best time to choose a career is in elementary school.
    D. We can't say for sure when the best time is to choose.

GO ON TO THE NEXT PAGE

70. The best way to learn what is involved in a particular job is to:

    A. Read about the job in a brochure or book.
    B. Observe a motion picture about the job.
    C. Visit the job site and talk with someone who does the job.
    D. Read about the job in the "want ad" section of the paper.

71. In choosing a career, a person should:

    A. Choose the one that pays the most.
    B. Choose the one with the most prestige or status.
    C. Choose the one that brings him full personal satisfaction.
    D. Choose the one that requires the most training.

72. Which of the following broad groups of occupations is expected to grow the most in the immediate future?

    A. Clerical
    B. Outdoor
    C. Technical
    D. Service to others

73. Which of the following groups of workers are hardest hit by national unemployment?

    A. Semi-skilled
    B. Craftsmen
    C. Unskilled
    D. Professional

74. Which of the following high school programs should a student take if he is planning to be a teacher?

    A. General
    B. Vocational
    C. Academic
    D. All of the above

75. "Preparations needed to enter an occupation" refers to:

    A. Only the educational experience needed to obtain employment in the occupation.
    B. The educational as well as other experiences needed to obtain employment.
    C. The work experience needed for the occupation.
    D. The skill and ability needed for the occupation.

THE END

TEST 5001

NEW MEXICO STATEWIDE EVALUATION PROGRAM

This test deals with attitudes about careers and work. We are interested in how you feel about statements relating to careers and work. There are NO right or wrong answers on this test. Use the following scale to indicate how you feel about each statement: a = strongly agree, b = agree, c = disagree, and d = strongly disagree.

The number of this test is printed in the upper right corner of this page. There are four test columns on your answer sheet. At the top of each test column there are four blank boxes labeled "Test Number." Write the four test numbers shown above onto your answer sheet in the four boxes under the words "Test Number." Blacken the oval beneath each box that matches the number you have written in the "Test Number" box.

An *example* of the "Answers" section of the answer sheet is shown below:

Example: **ANSWERS** ⓐ ⓑ ● ⓓ

The oval with the "c" printed in it has been marked on this *example* to show that the person taking the test disagrees with the *sample* statement.

When you are told to begin work, read each statement carefully and then mark your selected answer by filling in the appropriate oval for each statement. Note that you will use a separate answer column for each test. Make sure that you mark your answer beside the right statement number and in the appropriate test-number column. Mark only one choice for each statement. If you change your mind after making a choice, erase the wrong choice completely and fill in the oval for the answer you want. Make your best guess if you are not sure of the answer to a question. Do not spend too much time trying to answer any one statement.

Mark ONLY your answers on the answer sheet. You may use your test booklet for figuring. However, be sure to mark your selected answer on your answer sheet.

You will have minutes to work on this test. If you finish before time is up, go back and check that you have filled in an answer for each question. Please be courteous to those who have not finished by being quiet and remaining seated.

If you have a problem during the test, please raise your hand. If you have any questions, please ask them now.

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Department of Education, 1976.

FORM A

Mark the space on your answer sheet for the correct answer for each item. You may use your test booklet for figuring. Mark ONLY your answer on the answer sheet.

1. People seldom use what they learn in school on the job.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

2. Work is a way of improving your confidence in yourself.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

3. Money is the ONLY benefit you get from a job.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

4. Society would still function if many people did NOT do their jobs.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

5. Many criminals might have been better citizens if they had learned a trade in their youth.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

6. Success in most jobs is NOT related to how well one does in training for the job.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

7. Most workers feel that their jobs can do nothing but harm them.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

8. Realizing how well we live makes our hard work worthwhile.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

9. Training for a job is one of the most important things a young person can do.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

10. Only fools work hard at their jobs.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

11. I respect people who are serious about preparing for work.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

12. Being successful in a career is a chance to gain some personal satisfaction.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

13. Most workers are not able to earn enough money to be happy.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

14. Our society often needs people with different skills to work together to get a job done.

a. strongly agree
b. agree
c. disagree
d. strongly disagree

GO ON TO NEXT PAGE

15. The only thing you get for hard work is aches and pains.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

16. It is a sign of maturity to devote appropriate attention to preparing for a job.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

17. Some jobs allow people to use their creativity.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

18. Working can enable a person to learn many new and interesting things.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

19. Teamwork isn't really ever necessary to do any job.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

20. Hard work never hurt anyone.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

21. I enjoy learning skills that will help me to be successful in my future occupation.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

22. Most jobs make you feel unhappy and unimportant.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

23. Work is a good place to make friends.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

24. We have a good standard of living because every worker does his or her fair share.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

25. One of the things which can make America great is that people work so hard.
    a. strongly agree
    b. agree
    c. disagree
    d. strongly disagree

STOP: END OF TEST

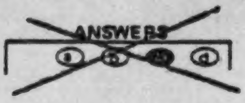
TEST 5002

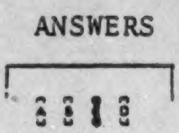
NEW MEXICO STATEWIDE EVALUATION PROGRAM

This test deals with career plans and decisions. The number of this test is printed in the upper right corner of this page. ~~There are four test columns on your answer sheet. At the top of each test column there are four blank boxes labeled "Test Number." Write the four test numbers shown above onto your answer sheet in the four boxes under the words "Test Number." Blacken the oval beneath each box that matches the number you have written in the "Test Number" box~~.

An *example* of the "Answers" section of the answer sheet is shown below:

Example:





The oval with the "c" printed in it has been marked on this *example* to show that choice "c" was selected as the correct answer for this *sample* question.

When you are told to begin work, read each statement carefully and then mark your selected answer by filling in the appropriate oval for each statement~~. Note that you will use a seperate answer column for each test~~. Make sure that you mark your answer beside the right question number and in the appropriate test ~~number column~~. Mark only one choice for each question. If you change your mind after marking a choice, erase the wrong choice completely and fill in the oval for the answer you want. Make your best guess if you are not sure of the answer to a question. Do not spend too much time trying to answer any one question.

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You will have ~~20~~ minutes to work on this test. If you finish before time is up, go back and check that you have filled in an answer for each question. Please be courteous to those who have not finished by being quiet and remaining seated.

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FORM A

Mark the space on your answer sheet for the correct answer for each item. You may use your test booklet for figuring. Mark ONLY your answer on the answer sheet.

1. **From the results of several interest tests, Esperanza knows her major interest is in working out-of-doors. Which of the following would provide the BEST information on varieties of jobs that involve working out-of-doors?**
   a. *Dictionary of Occupational Titles*
   b. want ads in the newspaper
   c. her physical education teacher
   d. her favorite school textbooks

2. **Roberto is graduating from high school in six months. He is unsure about any career and does not have any particular plan in mind. He is interested in many things, including sports. Which of the following is the BEST source of career information he might consult?**
   a. his counselor
   b. Amateur Athletic Union
   c. a track coach
   d. some of his favorite school textbooks

3. **Rachel, a 9th grader, is considering whether or not she would like to enter the high school vocational program in printing. She heard that printing is a good trade but she would like to know more about it.**
   Which one of the following is the MOST appropriate order of sources she should consult to find out more about printing?
   a. a journeyman printer, a class film about printing, the printing instructor, a public library book about printing
   b. a journeyman printer, a class film about printing, a public library book about printing, the printing instructor
   c. a class film about printing, the printing instructor, a public library book about printing, a journeyman printer
   d. a class film about printing, the printing instructor, a journeyman printer, a public library book about printing

4. **Jerry is in the middle of the 11th-grade program in auto mechanics and body repair. In 18 months he will be able to get a good job in an auto repair shop. There is specific information that he would like to find out about being a mechanic and he plans to talk with the owner of an auto garage in his neighborhood.**
   What kinds of information could he get from such a person that would be useful?
   a. how big the owner's garage is, and who works for him
   b. the kind of hours he can expect to work, and the kinds of tools he might need to buy
   c. the garage owner's favorite brand of paint and sanding equipment for body repair
   d. the easiest kind of customer to please

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5. Henry is a 12th grader from a large family. He is hoping to go to a private college even though it will cost him $2,000 a year. He has heard about loans and scholarships.

   From whom is he MOST likely to get accurate information about available financial aid?

   a. his social science teacher
   b. the college admissions office
   c. a friend in college
   d. his banker

6. Maria is in the 9th grade and thinks she wants to go to college. She is making B's in her courses. She will enter high school in September and is now being asked to plan a program. Choose from the following the MOST appropriate order of people she should talk with to help her plan her program.

   a. parents, girlfriends, teachers
   b. parents, neighbors, high school counselor
   c. high school counselor, parents, boyfriend
   d. high school counselor, parents, teachers

7. Ramon is good at carpentry. He wants to find out if carpenters are needed locally before applying for the apprenticeship program. Which one of the following sources would be LEAST likely to supply Ramon the best information?

   a. *Occupational Outlook Handbook*
   b. Union of National Brotherhood of Carpenters and Joiners
   c. a guidance counselor
   d. a friend who works in construction

8. Virginia thinks she wants to be an artist or a teacher. She is an 11th grader and is a B student. In addition to her required courses, Virginia is taking some art courses. Darken the space which represents the BEST order of sources for Virginia to consult for the information she needs.

   a. her friends, her parents, her counselors, and the *Occupational Outlook Handbook*
   b. her counselors, her friends, the *Occupational Outlook Handbook*, and her parents
   c. her counselors, the *Occupational Outlook Handbook*, her parents, and her friends
   d. her counselors, her friends, her parents, and the *Occupational Outlook Handbook*

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9. Connie is starting 10th grade. She has ideas about occupations which she might enjoy. However, Connie wants to check to see what jobs will be available when she finishes high school.

   What would be the BEST source for Connie to go to for information about the future job market for her fields of interest?

   a. *Dictionary of Occupational Titles*
   b. *Occupational Outlook Handbook*
   c. want ads in the local newspaper
   d. vocational interest tests

10. Which one of the following would NOT be a good way to learn about the supply and demand of a particular occupation?

    a. going to the local employment office
    b. talking to personnel directors
    c. asking those currently employed in the field
    d. determining the number of workers in your local community

11. Rodney is going to college part-time next year. He cannot decide between the business school and state college. He wants to know which will allow him to take the widest variety of courses at night.

    Where is he MOST likely to get accurate information?

    a. from his high school counselor
    b. from the two colleges' orientation handbooks
    c. from the two colleges' admissions counselors
    d. from *A Guide to Colleges*

12. Allison is in her second year of college and hopes to enter government foreign service because she likes to travel. A friend told her they could train to be airline stewardesses. Allison is unsure whether to continue college or enter stewardess training. She wants to determine which job is more likely to need people before she makes a decision.

    What is the best source of information regarding the availability of jobs in BOTH fields?

    a. *Occupational Outlook Handbook*
    b. encyclopedia
    c. State Department of Education
    d. Airline Stewards and Stewardesses Association

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13. Rudy, an 11th grader, is planning his future. He wants to talk about his ideas with someone who knows about good plans. Who is likely to be MOST helpful?

   a. his guidance counselor
   b. his coach
   c. his neighbor
   d. his buddy who is in college

14. Sam Casey wants to become an aerospace engineer and will soon enter college. However, he has heard that there may be more engineers than are needed. How might Sam get more information?

   a. contact the college he plans to attend
   b. ask other aerospace engineers
   c. look up the information in the *Occupational Outlook Handbook*
   d. write an aerospace engineering company and ask how many positions are available at present

15. Orlando, a 12th grader, has written several outstanding short stories and has won school contests for his writing. Now he is wondering how good he is and if he should try to be a writer. He needs more information about what skills are necessary to be a successful writer. What would be the BEST source of information to consult?

   a. *A Workbook for Writers*
   b. *Occupational Outlook Handbook*
   c. *Dictionary of Occupational Titles*
   d. *Modern English of Today*

16. Alex has decided to be a plumber and wants to enter the apprentice program. Which of the following is the BEST order of sources for Alex to consult?

   a. the school counselor, a journeyman plumber or pipefitter, the National Plumbers Union, and the local state employment office
   b. the school counselor, the local state employment office, the National Plumbers Union, and a journeyman plumber or pipefitter
   c. the local state employment office, the National Plumbers Union, the school counselor, and a journeyman plumber or pipefitter
   d. the school counselor, a journeyman plumber or pipefitter, the local state employment office, and the National Plumbers Union

17. Doug is graduating from high school in June. He wants to find out what post-high school job training programs are available.
Which of the following sources would be MOST helpful?

- a. Yellow Pages
- b. *Occupational Outlook Handbook*
- c. high school counselor
- d. friends' suggestions

18. Suppose you wanted to become a member of the local police force. Which of the following would be the BEST source of information to find out about job requirements and duties?

- a. a retired policeman
- b. the chief of police
- c. local employment agency
- d. the mayor and town council

19. Audrey, a 12th grader, is thinking about becoming an accountant. She is good at math and is trying to find out how she would like accounting.
Which of the following is LEAST likely to help her find out?

- a. reading about accountants in the *Occupational Outlook Handbook*
- b. reading want ads for accountants
- c. doing a work sample containing different accounting problems
- d. watching a film about accounting procedures

20. Carolina is making out her 10th-grade program. She is not sure what she does well or what she should do after she graduates. Decide in what order Carolina should consult the following sources of career information. Darken the space which represents the BEST order of sources.

- a. the state employment office, the *Occupational Outlook Handbook*, her parents, and her school counselor
- b. the *Occupational Outlook Handbook*, the state employment office, her parents, and her school counselor
- c. her school counselor, the *Occupational Outlook Handbook*, the state employment office, and her parents
- d. the state employment office, her school counselor, the *Occupational Outlook Handbook*, and her parents

STOP: END OF TEST

TEST 5006

NEW MEXICO STATEWIDE EVALUATION PROGRAM

This test is about making occupational decisions. Some of the questions that ask about steps you may have taken to help make career decisions have no right or wrong answers. The number of this test is printed in the upper right corner of this page. ~~There are four test columns on your answer sheet. At the top of each test column there are four blank boxes labeled "Test Number." Write the four test numbers shown above onto your answer sheet in the four boxes under the words "Test Number." Blacken the oval beneath each box that matches the number you have written in the "Test Number" box~~.

An *example* of the "Answers" section of the answer sheet is shown below:

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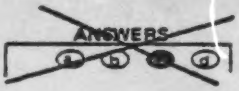

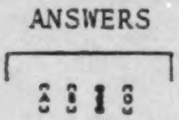

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Mark ONLY your answers on the answer sheet. ~~You may use your test booklet for figuring. However, be sure to mark your selected answer on your answer sheet~~.

You will have   minutes to work on this test. If you finish before time is up, go back and check that you have filled in an answer for each question. Please be courteous to those who have not finished by being quiet and remaining seated.

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FORM A

Mark the space on your answer sheet for the correct answer for each item. You may use your test booklet for figuring. Mark ONLY your answer on the answer sheet.

1. "Career Choice" is
   - a. how much an individual needs to know about a job.
   - b. the field in which you ranked highest on an aptitude test.
   - c. a decision to work in a chosen field.
   - d. a decision that is final once it is made.

2. Joe wants to be an auto mechanic, but he lacks the training. Below is a list of four solutions to the problem. Three of these are good solutions; one is unlikely to work. Which is the one solution LEAST likely to solve Joe's problem?
   - a. go to vocational school in an auto repair program
   - b. go to work on an auto assembly line in a factory
   - c. become an apprentice in a garage which repairs cars
   - d. enlist in the armed forces in a vehicle mechanics program

3. Choose the one statement below that would BEST tell you what "career choice" means.
   - a. identifying interests and skills that you have that could be used to earn a living
   - b. selecting a job on weekends to earn spending money
   - c. identifying a job that is respected and pays a high salary
   - d. selecting the job that pays the most money

4. Which one of the following school activities would help you become a good salesman?
   - a. swimming team
   - b. pep club
   - c. debate team member
   - d. science club projects

5. Consuela wants to become a legal secretary. There is no possible way her family can afford to send her to school. Which one of the following is NOT a good solution to her problem?
   - a. join the Armed Forces and receive training there
   - b. give up her idea of becoming a legal secretary
   - c. get a job to earn money for training later
   - d. apply for scholarship or loan to attend school

6. Suppose you had decided to become a plumber. Which one of the following experiences would NOT prepare you for this career?
   - a. joining a physics club
   - b. helping a friend install air-conditioning in a house
   - c. taking an evening course in power machines and use of welding and soldering equipment
   - d. helping to put in a sidewalk

7. Which one of the following activities would BEST help you become a good librarian?
   - a. library aide
   - b. cheerleader
   - c. English club member
   - d. library club member

8. Linda is a home economics major in college. She is having problems with her chemistry course. Which one of the following solutions is the BEST solution for her problem?
   - a. drop the course
   - b. change to an easier major
   - c. get help from classmates in course
   - d. hire a tutor for extra help in the course

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17. During the past year, I have
    a. learned about apprenticeship and other job training programs which I could attend.
    b. learned about colleges which I could attend.
    c. done BOTH of the above.
    d. done NONE of the above.

18. During the past year, I have decided upon
    a. a specific training program to enter after high school.
    b. a specific occupation to enter after completing school.
    c. BOTH of the above.
    d. NONE of the above.

19. During the past year, I have
    a. discussed job and/or college training programs with a counselor.
    b. found out how people enter occupations that are of interest to me.
    c. done BOTH of the above.
    d. done NONE of the above.

20. During the past year, I have
    a. learned the cost of training for the occupation in which I am interested.
    b. learned how much study and experience is necessary to enter the occupation of interest to me.
    c. done BOTH of the above.
    d. done NONE of the above.

STOP: END OF TEST

TEST 5007

NEW MEXICO STATEWIDE EVALUATION PROGRAM

This test deals with various situations about applying for a job. The number of this test is printed in the upper right corner of this page. ~~There are four test columns on your answer sheet. At the top of each test column there are four blank boxes labeled "Test Number." Write the four test numbers shown above onto your answer sheet in the four boxes under the words "Test Number." Blacken the oval beneath each box that matches the number you have written in the "Test Number" box.~~

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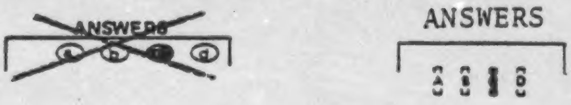

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FORM A

Mark the space on your answer sheet for the correct answer for each item. You may use your test booklet for figuring. Mark ONLY your answer on the answer sheet.

1. **Frank just graduated with a junior college degree in business and transportation. While in high school and junior college, Frank helped his dad with the family grocery, but he received no pay for it. The job application asks if he has paid work experience.**
   What should Frank write?
   a. no
   b. yes, with an explanation
   c. no, with an explanation
   d. leave it blank

2. **Leonard wanted to be a telephone operator. He arrived punctually for his appointment, spoke pleasantly to the receptionist, and answered all the questions on the employment application. In answer to the interviewer's questions, Leonard made lengthy unclear explanations about handling different problems. It was necessary for the interviewer to frequently interrupt him and remind him of the question. Leonard was not hired.**
   What is the MOST likely reason?
   a. Leonard did not think carefully about his solutions before answering.
   b. There were not enough job openings in the telephone company.
   c. Leonard had a voice that would not be pleasant to the public.
   d. Leonard does not have enough experience.

3. **Marilyn is graduating from junior college with a degree in electronics, and she is hoping to work for a computer company.**
   Which of the following would be MOST important to do in preparing for a job interview with the computer company?
   a. read the company literature about the job she might do
   b. take a guided tour of the company building
   c. buy or rent an expensive well-coordinated outfit
   d. ask a person she knows in the company to speak for her

4. **Bob is graduating in two months and is looking for a job. Which of the following would be LEAST likely to help him locate a job?**
   a. want ads in the paper
   b. state employment service
   c. family and friends who are working
   d. Better Business Bureau

5. **Helen has graduated with a degree in marketing and business and would like selling non-technical products. In the appropriate blank on the job application form, Helen wants to clearly and briefly state the type of job she wants.**
   What should she write?
   a. sales trainee in non-technical area
   b. selling jobs
   c. sales position with growing firm
   d. selling all but technical products

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6. Luce, 18, wants to get a job in the assembly line at a factory. Which of the following would be LEAST helpful to her in obtaining the job?

a. completing the job application completely and neatly
b. answering the interviewer's questions thoroughly
c. arriving late for her interview appointment
d. inquiring about the possibility of promotion

7. Ramon just finished high school with C and B grades, and he has decided to work for a while before entering college. He is looking for a trainee job in any firm or industry. Because he does not have a special skill like his friends who completed vocational technical training, he is asking for less pay than his friends. He has had four interviews and has been turned down in each.

What is the MOST probable reason?

a. He needs to be more specific about the job he wants.
b. His friends went with him when he had a job interview.
c. He has had too many interviews.
d. He was too nervous during the interview.

8. Sam just completed the automotive mechanics training program in high school. He has helped at a local garage doing minor repairs in the summer. Sam is filling out several applications for his first full-time job.

For which of the following jobs is Sam probably MOST qualified?

a. experienced transmission repairman at $170 a week
b. gas attendant at a service station at $100 a week
c. apprentice mechanic at $100 a week
d. all around mechanic at $125 a week

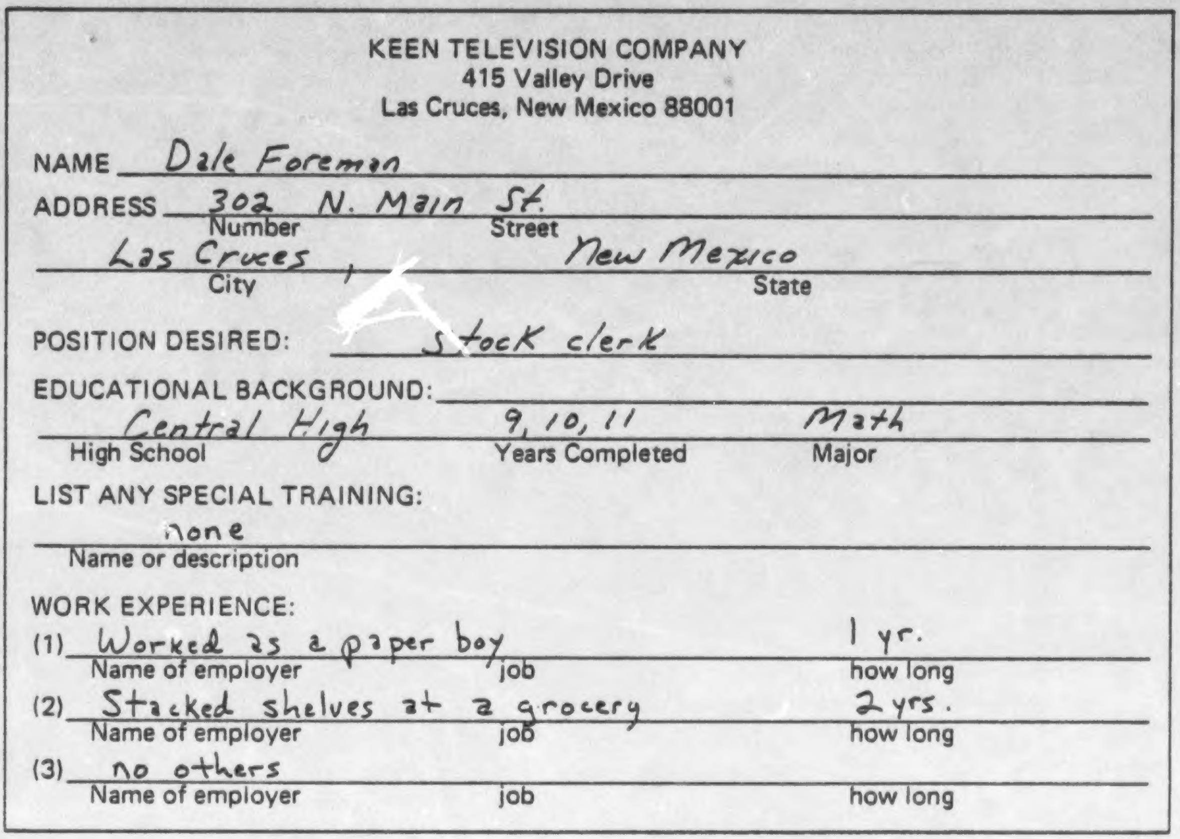
9. Ned is a construction electrician and a member of the International Brotherhood of Electrical Workers union. He has just moved to a metropolitan area and is looking for a job.

Which of the following would be the MOST appropriate source for him to see about available jobs?

a. Employment Security Commission
b. the local union office
c. a construction site
d. all want ads in a newspaper

GO ON TO NEXT PAGE

10. **Dale Foreman has just filled in a job form to try to get work at the Keen Television Company. He lives in Las Cruces, New Mexico, at 302 N. Main St. Below is his completed form.**



KEEN TELEVISION COMPANY
415 Valley Drive
Las Cruces, New Mexico 88001

NAME Dale Foreman

ADDRESS 302 N. Main St.
Number Street

Las Cruces , New Mexico
City State

POSITION DESIRED: Stock clerk

EDUCATIONAL BACKGROUND:

Central High 9, 10, 11 Math
High School Years Completed Major

LIST ANY SPECIAL TRAINING:

none
Name or description

WORK EXPERIENCE:

(1) Worked as a paper boy		1 yr.
Name of employer	job	how long
(2) Stacked shelves at a grocery		2 yrs.
Name of employer	job	how long
(3) no others		
Name of employer	job	how long

Which sentence below BEST describes how Dale filled in his application form?

a. Dale completed his job form correctly.
b. Dale made an error in filling out his name and address.
c. Dale made an error in completing the educational background section.
d. Dale made an error in filling out the work experience part.

11. Isabella has just graduated from high school and is filling out an application form for a large publishing firm. She has taken advanced typing and shorthand and has excellent speed in both. Isabella has also taken a business procedures course and a business law course. She has been earning A's and B's.

For which of the following jobs are her qualifications MOST appropriate?

a. experienced executive secretary
b. clerk-typist/minimal office skills required
c. office receptionist
d. secretary-typist/advanced office skills required

12. Manuel has completed the vocational courses program in printing at his high school. He will graduate in June and would like to find a job in printing.
Which of the following is MOST likely to help him find a job?

a. talking to his teachers about possible jobs
b. touring a large publishing firm
c. discussing his hopes of finding a job with friends
d. applying at a State Employment Office

13. Betty Walker would like to have a job as a telephone operator. Here are some facts about Betty. Her full name is Elizabeth Lynn Walker. Her address is 505 Rose Drive, Belen, New Mexico 87002. Her telephone number is 505-864-2006. Below you can see a portion of the application form Betty completed.

CITY TELEPHONE COMPANY
4567 West Market Street
Belen, New Mexico 87002

FULL NAME Elizabeth Lynn Walker
First Middle Last
PRESENT ADDRESS 505 Rose Drive, Belen, New Mexico 87002
HOME TELEPHONE NUMBER 864-2006
(Area Code) (Telephone Number)

Which sentence below BEST describes how Betty filled in her application form?

a. Betty completed her application correctly.
b. The applicant must always put the last name first on an application.
c. It is incorrect to fill in the city where you live if it is the same as the company's.
d. Betty omitted the area code from her home telephone number.

14. A beauty salon is hiring hairdressers. Which of the following women is MOST likely to be hired?

a. Ann is a very pretty, charming girl who finished her vocational training with a C average. She talks on and on to the personnel manager which delays his interviewing of the other applicants.
b. Betty arrives just before applications close. She has an A average in school, but she made some errors in her interview and on the job application because she was so rushed.
c. Carol dresses neatly and arrives when job applications open. She has a B average and completes her application neatly and correctly.
d. Donna just came from swimming. Her hair and dress are a bit rumpled. She has a B average and completed her application correctly.

15. When you are filling out an application blank, you should write "n/a"

a. in blanks for which you don't know the answer.
b. in blanks for questions which don't apply to you.
c. in no blanks on the form.
d. in any blanks marked "for office use only."

GO ON TO NEXT PAGE

16. Ted is hoping to get a typing job with an oil company. Which of the following is MOST appropriate for him to do?
    a. have his father arrange an interview with the company for him
    b. send in his resume and wait for an answer
    c. ask a friend to accompany him while he is applying in person
    d. visit the personnel office himself and file an application

17. If an employment application asks you to list your "previous employment" but you have never had any job like the one you are applying for, you should
    a. write "none."
    b. write "nothing applicable."
    c. list the jobs you have had.
    d. make up some appropriate jobs and list them.

18. Benito is hoping to drive a bus for the city bus company. He is preparing a folder of information for a job interview. Which of the following is the MOST necessary information to take to the interview?
    a. name of his father's employer
    b. name of his bank or savings and loan
    c. name of companies he has charge accounts with
    d. names, addresses and phone numbers of previous employers

19. Jake would like to be a truck driver with a fruit processing company. He graduated from high school last week with a general education. The company gives several driving tests and a personal interview. Which of the following would be MOST appropriate to do to prepare for the driving tests and interview?
    a. Review the driving regulations.
    b. Read up on the food-growing industry.
    c. Prepare a folder with examples of his school work.
    d. Study the highway maps to learn the trucking routes.

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20. Joe Gonzalez wants a job at the Alice Printing Company. Here are some facts about Joe. His middle name is Antonio. His address is 444 Josephine Street. His telephone number is 664-2345. His emergency telephone number is 664-4004. His social security number is 465-39-5105.

Below are four application forms which he might have completed. Darken the answer for the one which has been completed correctly.

a.
Print Your Name Joe Antonio Gonzalez
First Middle Last
Street Address 444 Josephine Street
Telephone Number 2345 Emergency Tel. No. 664-4004
Social Security Number 465-39-5105

b.
Print Your Name Gonzalez Joe Antonio
First Middle Last
Street Address 444 Josephine Street, Alice, Texas 78332
Telephone Number 664-2345 Emergency Tel. No. 664-4404
Social Security Number 465-39-5105

c.
Print Your Name Joe Antonio Gonzalez
First Middle Last
Street Address 444 Josephine Street
Telephone Number 664-2345 Emergency Tel. No. 664-4004
Social Security Number 465-39-5105

d.
Print Your Name Joe Antonio Gonzalez
First Middle Last
Street Address 444 Josephine Street
Telephone Number 664-4004 Emergency Tel. No. 664-2345
Social Security Number 465-39-5105

STOP: END OF TEST

TEST 5008

NEW MEXICO STATEWIDE EVALUATION PROGRAM

This test is about decisions people make while working on their jobs. The number of this test is printed in the upper right corner of this page. ~~There are four test columns on your answer sheet. At the top of each test column there are four blank boxes labeled "Test Number." Write the four test numbers shown above onto your answer sheet in the four boxes under the words "Test Number." Blacken the oval beneath each box that matches the number you have written in the "Test Number" box.~~

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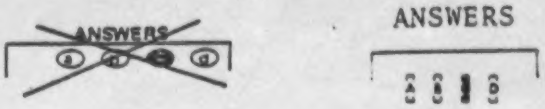

The oval with the "c" printed in it has been marked on this *example* to show that choice "c" was selected as the correct answer for this *sample* question.

When you are told to begin work, read each statement carefully and then mark your selected answer by filling in the appropriate oval for each statement. ~~Note that you will use a seperate answer column for each test.~~ Make sure that you mark your answer beside the right question number and in the appropriate test ~~number column~~. Mark only one choice for each question. If you change your mind after marking a choice, erase the wrong choice completely and fill in the oval for the answer you want. Make your best guess if you are not sure of the answer to a question. Do not spend too much time trying to answer any one question.

Mark ONLY your answers on the answer sheet. ~~You may use your test booklet for figuring. However, be sure to mark your selected answer on your answer sheet.~~

You will have ~~20~~ minutes to work on this test. If you finish before time is up, go back and check that you have filled in an answer for each question. Please be courteous to those who have not finished by being quiet and remaining seated.

If you have a problem during the test, please raise your hand. If you have any questions, please ask them now.

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FORM A

Mark the space on your answer sheet for the correct answer for each item. You may use your test booklet for figuring. Mark ONLY your answer on the answer sheet.

1. **Alfredo is a TV repairman. His work is very good and over the years his customers keep coming back to him. Alfredo's boss thinks very highly of him and considers him successful at his job.**

   Which of the following statements reflects an important attitude that probably contributes to Alfredo's success?

   a. I'll do the job in as little time as possible.
   b. I'll loaf around and my boss will never know.
   c. I wish someone else would do more of the work around here.
   d. I'll do the job right the first time.

2. **Luciano has been working in a grocery store as a stock boy for almost 6 months. Recently, he was asked to fill in for a sick checker. He does well on quiet days but on weekends he has trouble making correct change and trouble balancing his cash drawer. He is due for a review.**

   Which factor would his boss consider MOST important when deciding whether to advance him to a cashier full time or to keep him in his present position?

   a. Luciano is always on time for work.
   b. Luciano is pleasant to customers looking for things in the aisles.
   c. Luciano has had problems keeping up with duties as a cashier.
   d. Luciano works well with the stock clerks.

3. **Lem works in a supermarket as produce manager. He supervises the stock boys and sets a good example in his work. His work is always outstanding. Lem sometimes uncovers pricing errors which would cost the store a lot of money. The food in his department is always fresh. Lem is careful to insure that his customers are well-satisfied.**

   Which one of the following shows a way in which Lem's work would affect his status in the store?

   a. Lem would probably be asked by another store to come to work for them.
   b. Lem would be looked up to by his fellow employees as a good worker.
   c. Lem would feel that he is better than everyone else.
   d. Lem's boss might think that Lem is out to get his job.

4. **Stan does not own a car; therefore, he takes the bus to work. It takes him 45 minutes to get to work from his home. This week the bus drivers are on strike. What should Stan do?**

   a. ask his boss for some suggestions
   b. tell the boss he is taking this week off
   c. try to hitchhike to work for the week
   d. arrange for a friend to drive him to work for the week

GO ON TO NEXT PAGE

5. Darren was loading a truck in the warehouse when a box fell on Tim. Tim was knocked unconscious, and Darren called an ambulance. Then he called the foreman and explained what happened.

   Which one of the following factors would be one that the foreman would consider when reviewing Darren's request for advancement?

   a. Darren was in the dock area where the accident occurred.
   b. Darren was thoughtless about reporting an accident.
   c. Darren was good at reacting fast at the scene of an accident.
   d. Darren was a bad truck driver.

6. Toni is a policewoman. She would like to advance in her department. Which of the following is LEAST likely to help her advance?

   a. hope that she is lucky
   b. be punctual and cooperative on the job
   c. be pleasant to the people in her patrol area
   d. take police science courses after work

7. Clarissa is one of the lab technicians who analyzes samples at the paint company. Recently one of the other technicians quit, and so Clarissa and the others have 25% more samples to analyze. Clarissa must do three tests on each sample, but if the first two don't show anything, the third is almost always negative. They get overtime pay, but Clarissa has to go to school Monday, Wednesday, and Friday of each week at 7 p.m., two hours after normal quitting time. She finds that she is going to class later and later because of the overtime work.

   Which of the following should Clarissa do?

   a. do only two tests on each sample, instead of three
   b. drop her course and continue working overtime
   c. discuss this conflict with the foreman
   d. quit work every night at 5:00 whether she has finished her work or not

8. One morning Elaine woke at 8:45 a.m. Even if she hurried, she would still be an hour late for work. What should she do?

   a. telephone that she is sick and can't go to work
   b. hurry and get to work as quickly as possible
   c. call and explain that she will be an hour late for work
   d. stay home and report for work the next day

GO ON TO NEXT PAGE

9. Joan wants to run her own shop. She is taking courses in business, business law, economics, and accounting. Which one of the following experiences would MOST likely prepare her for running her own business?
   a. lead actress in school play
   b. school bookstore manager
   c. student council member
   d. senior class representative

10. Mike would like to become an actor. Which one of the following activities would MOST help him achieve his goal?
    a. become a basketball star
    b. run for junior class president
    c. become a student forum representative
    d. be the master of ceremonies for the school's annual variety show

The remaining questions are concerned with various career activities. There are NO right or wrong answers to these questions. For each question, mark the answer that is MOST true for you.

11. Which of the following is MOST true of you?
    a. I choose courses which do not require much work.
    b. I choose my elective courses so that I can be with friends.
    c. I choose electives to find out more about my interests and abilities.
    d. I choose electives in which it is easy to earn high grades.

12. During the past year, I have
    a. decided how many more years I want to stay in school before getting a full-time job.
    b. decided whether to go to college, into the Armed Forces, into a job, or into a job training program.
    c. done BOTH of the above.
    d. done NONE of the above.

13. During the past year, I have talked
    a. to workers in the occupation which I intend to enter about their job requirements.
    b. to students in the training program which I intend to enter about its requirements.
    c. to BOTH of the above.
    d. to NONE of the above.

14. During the past year, I have
    a. taken courses which have helped me to explore my interests.
    b. been a volunteer or worked in a job which helped me explore my interests.
    c. done BOTH of the above.
    d. done NONE of the above.

15. During the past several years, I have
    a. gone to my counselor and have taken various courses that have helped me decide the kind of occupation I plan to enter after graduating from high school.
    b. gone to my counselor and engaged in different kinds of activities that have helped me decide the type of education I will try to obtain after graduating from high school.
    c. done BOTH of the above.
    d. done NONE of the above.

16. During the past year, I have
    a. read books and pamphlets about different occupations in order to find out more about them.
    b. read college or business school or vocational training school catalogues in order to find out more about the kind of education I might obtain.
    c. done BOTH of the above.
    d. done NONE of the above.

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9. Consuelo works with eight other computer programmers. She, like the others, is hoping to become a systems analyst. Usually the most efficient programmer gets promoted to systems analyst. What should she do to obtain the promotion?

   a. take advanced computer training courses in the evenings
   b. date her supervisor in order to convince him of her talents
   c. wear more expensive clothes than the other programmers
   d. tell her supervisor about the faults of the people who are doing well

10. Gary has just started working at the foundry. He wants to keep his job and have good relations with his fellow employees. What will help him MOST to be successful at his new job?

   a. wear good clothes even though they will get dirty
   b. ask questions about things when he doesn't understand
   c. nothing; all he can do is hope that things go well
   d. treat his fellow workers to coffee

11. Gilberto is an experienced teller at the bank. Fred just finished training, and the manager asks Gilberto to help Fred out if he has any questions. On a busy day, Fred's line is moving half as quickly as Gilberto's, and he is slowing Gilberto up by asking questions. One of the reasons Gilberto might be considered for the head teller position when it becomes available is that

   a. he complained about having to train a fellow employee.
   b. his customers were irate with the interruption.
   c. he helps fellow workers as well as keeping up his own work.
   d. he stopped answering Fred's questions when the time was right.

12. Mary is in college and has just started in the supermarket as a box girl. She is punctual, polite to customers, and a quick packer. When business is slow, she starts shelving stock without being told. Within two months a checker position opens up, and Mary is given a trial at it, although five other box girls and boys have seniority.
Why did Mary get the checker's job?

   a. It was just a lucky break.
   b. She is pretty and supervisors tend to promote pretty girls first.
   c. Her work as a box girl indicated that she would do better than the others.
   d. None of the others are in college.

13. Suppose you decided to run for public office in your county. Which one of the following statements should you believe in to become a successful public servant?

   a. Public servants are always corrupt.
   b. Public servants need to speak out against the people they represent.
   c. Public servants need to speak out for the people they represent.
   d. Public servants need to favor special interest groups.

GO ON TO NEXT PAGE

14. John, a young bookkeeper, is progressing toward his career goal as an accountant. Which of the following behaviors will contribute MOST to his possibilities of being promoted?

    a. He is enrolled in a college trigonometry course.
    b. He works on weekends as a shoe salesman.
    c. He expresses new, useful ideas at his bookkeeping job.
    d. He often expresses his wish to become an accountant.

15. Benito has been working as an assistant librarian for the last five years. He is punctual and does his job just the way he has been taught. After work, he goes to a ball game, bowling, on a date, or to the tavern. Lately he is getting discouraged because he has not been promoted. What is the MOST likely reason?

    a. He does not know the right people.
    b. He has not shown the initiative or interest to justify promotion.
    c. He is too much of a playboy.
    d. He has not gone for more schooling.

16. Otto works as a waiter in a large restaurant. He likes his job and talks a lot to his customers, telling them jokes and suggesting this or that item on the menu. Lately, Otto has made several mistakes by not giving customers what they ordered. The head waiter is concerned about the complaints.
    What is the MOST likely explanation?

    a. The restaurant has been very crowded and busy lately.
    b. Everyone is bound to make a mistake now and then.
    c. Otto has not been careful in writing down the orders.
    d. The cook is trying to get Otto in trouble.

17. Ed was a computer programmer for a large firm. It seemed that almost all complaints about bad programs and runs full of errors involved Ed's work. Ed seemed to be disenchanted with his work and didn't concentrate as much as he should.
    Ed's poor work can affect his status with the other workers because they

    a. are tired of being blamed for Ed's poor work.
    b. might quit their jobs.
    c. won't care about Ed's work quality.
    d. will take longer coffee breaks.

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18. **Julia is an apprentice plumber. There are six steps in apprenticeship. She has skipped two steps already and now she is about to become a journeyman. What is the MOST likely reason?**

    a. She has good union connections.
    b. She was never late for work.
    c. She felt very lucky in this job.
    d. She showed that she learns more quickly than others.

19. **Margaret is going to school and is working as a telephone operator giving directory assistance. She has been concerned with her courses this semester. Margaret feels she is doing well at work, but her supervisor claims her work is poor.**

    What is the MOST likely explanation for Margaret possibly losing her job?

    a. Margaret is too concerned with doing well in school.
    b. Margaret has been getting a lot of difficult questions and so she is making more mistakes.
    c. Margaret is giving more incorrect information than is acceptable.
    d. The supervisor is picking on Margaret.

20. **Justiniano is a member of the computer team at a department store. Lately, another member of the team has been letting a lot of errors go by in addresses. When Justiniano points them out, his teammate says they are not important because they will be corrected when returned by the Post Office. What should Justiniano do?**

    a. Let the errors go; friendship is more important than small errors in the job.
    b. Tell his teammate that he will have to inform the supervisor if the errors do not stop.
    c. Inform the supervisor in an anonymous note.
    d. Tell the supervisor immediately about the errors.

21. **Libby has just started in the tool company as a machinist's helper, and she wants to do well. Which of the following should she NOT do?**

    a. ask questions of her foreman and fellow employees
    b. discuss her career plans with her fellow employees
    c. inform the foreman about the jobs she will not do
    d. arrive punctually for work every day

GO ON TO NEXT PAGE

22. Patricia works as a secretary, but she has become increasingly dissatisfied with her job. It occurred to her recently that she would be happier and work would go a lot more smoothly if her department were organized and run in a different way. What should she do?

    a. nothing; just try to keep going
    b. threaten to quit unless something is done
    c. look for another job in another department
    d. write down her ideas and present them to her boss

23. Sylvia and five other librarians shelve books as part of their duties. Her fellow workers average 100 books an hour, but Sylvia finds that she does 130 easily. She wonders what to do, because she fears the others will not like her if she produces too much. What should she do?

    a. continue her work, and if her friends get angry, discuss the situation with her boss
    b. slow down and keep pace with her friends to increase group morale
    c. discuss it with her fellow employees and do what they tell her to do
    d. look for another job where the employees work faster

24. Mariano had wanted to be a systems analyst at the insurance company. One needs insurance experience to be a systems analyst. Mariano started as a trainee, became an actuarial clerk, then a programmer, and finally an analyst. While working, he took math and computer courses at night.

    What is the MOST likely reason that Mariano became a systems analyst?

    a. He developed and followed a good plan.
    b. He was lucky.
    c. The personnel department arranged it.
    d. People liked him.

25. Andy is the night man at the gas station. He is supposed to keep the station open until midnight although only an occasional customer comes in after 10 p.m. Tomorrow is the big school dance. In order to make it, Andy will have to leave the station at 11 p.m. What should he do?

    a. Close the station and say nothing to anyone.
    b. Arrange for a buddy to stay in the station after 11 p.m.
    c. Miss the dance and keep the station open.
    d. Tell the boss about the dance and his ability to get a substitute.

STOP: END OF TEST

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P 1.1

GRADE 6

OHIO CAREER DEVELOPMENT

FINAL TEST
FIELD-BASED ITEMS
1975-76

664

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PART ONE

You can help us by giving your answers to the following questions. You will not get a grade on this test. We just want you to try to answer all questions as well as you can.

Read each question to yourself. Then read the choices. Mark the letter on your answer sheet giving the choice which you think is best.

Let's try one.

Which one of these things do people need to live?

A. Games
B. Cars
C. Food
D. Television

Which is the best choice?.... Yes, food is necessary in order to live, so you would mark the letter "C" on your answer sheet.

1. Which of these persons might work with an anthropologist?
   A. A teacher
   B. A psychologist
   C. An archaeologist
   D. An economist

2. Being interested in both plants and animals is most important for a
   A. forest ranger.
   B. botany teacher.
   C. veterinarian.
   D. geologist.

3. Which of the following is most important when a student is choosing a career in science? The student's
   A. interests.
   B. attendance record.
   C. teacher's opinion.
   D. personality.

4. The current gas and fuel oil situation has the most effect on the jobs of which of the following?
   A. Department store salespersons
   B. Auto mechanics
   C. Wholesale jewelers
   D. High school principals

5. Most police officers choose their jobs because they
   A. are the best athletes.
   B. are not afraid of danger.
   C. like to do the work.
   D. do not want to go to college.

6. An author of a children's book would work most closely with which of the following people?
   A. Banker
   B. Printer
   C. Bookbinder
   D. Illustrator

7. A store manager takes inventory to know
   A. what goods to order.
   B. how to price goods.
   C. why things don't sell.
   D. how well an individual works.

8. When a class needs to make a decision, each student should think about how the result will affect
   A. himself or herself.
   B. the principal.
   C. the teacher.
   D. all those involved.

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9. A student is responsible for having pencils and paper at school just like a plumber is responsible for having
A. an education.
B. an estimate.
C. a good attitude.
D. tools.

10. A student who is on the safety patrol is responsible for
A. being on time.
B. liking the job.
C. buying the badge.
D. knowing all the students' names.

11. Which of the following does not require math skills?
A. Balancing a check book
B. Preparing a tax return
C. Planning a budget
D. Planning a memo

12. A person who is learning how to do a job while working with someone who knows the job is working as
A. a student.
B. a foreman.
C. an apprentice.
D. a professional.

13. The Secretary of State works very closely with
A. the people.
B. the Presidents.
C. the courts.
D. the post office.

14. A person who has the most responsibility in a store or business is called the
A. manager.
B. head clerk.
C. treasurer.
D. foreman.

15. Which of the following would you least expect to see in a large factory?
A. Secretaries
B. People doing many different types of jobs
C. Products made by hand
D. Computers

16. Being able to complete a task even when it's hard requires
A. courage.
B. assistance.
C. self-respect.
D. self-discipline.

17. A condition that could cause the price of wheat to go down is
A. very poor weather.
B. very good weather.
C. crop failures.
D. exporting wheat to other countries.

18. Which of the following is the division of a factory which takes care of repairing machinery and keeping everything in good working order?
A. Quality control
B. Machinist
C. Maintenance
D. Custodial

19. Which of the following professionals uses a balance sheet in his or her work?
A. An insurance agent
B. A market researcher
C. An architect
D. An accountant

20. To get the money a city needs to provide services for its citizens, a city must
A. charge fines.
B. levy taxes.
C. charge interest.
D. accept donations.

21. Businesses such as a car factory, a department store, and a steel mill are important to cities because they provide
A. raw materials.
B. tax shelters.
C. employment.
D. surpluses.

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22. One effect of monopoly can be that
    A. a country becomes communistic.
    B. small companies go out of business.
    C. labor costs tend to fall.
    D. prices tend to fall.

23. Which of the following are usually self-employed?
    A. Teachers
    B. Judges
    C. Beauty shop owners
    D. Department store clerks

24. One of the things which a school nurse can always do is
    A. take a student's blood pressure.
    B. give a student shots.
    C. give a student medicine.
    D. write out a prescription for parents to fill.

25. Rigs and citizen band radios are terms used most often by
    A. disc jockeys.
    B. truck drivers.
    C. construction workers.
    D. electronic engineers.

26. Which of the following is a job that often requires a new employee to work on week-ends and holidays?
    A. Insurance salesperson
    B. Registered nurse
    C. Guidance counselor
    D. Bank teller

27. When an individual or company buys a piece of land, the local government issues the owner
    A. a contract.
    B. a deed.
    C. a license.
    D. a will.

28. In a city election citizens often have to vote for officials and also on
    A. debates.
    B. issues.
    C. rights.
    D. decisions.

29. When you want to do something just because everyone else does, you are
    A. always wrong.
    B. always right.
    C. studying the choices.
    D. listening to peer pressure.

30. When a student suggests a better way to do something and everyone agrees, you might say that student is
    A. selfish.
    B. inventive.
    C. aggressive.
    D. inconsiderate.

31. Which of the following is the best place to find out how good a certain product is?
    A. A local newspaper ad
    B. A magazine article
    C. Consumer Reports magazine
    D. A sales clerk

32. Which of the following is a type of tax you pay on the money you make each year?
    A. Real estate
    B. Profit
    C. Income
    D. Social security

33. Which of the following industries is usually most affected by a decline in war activities?
    A. Steel
    B. Computer
    C. Aeronautics
    D. Construction

34. The best way for a sixth grader to learn a lot from visiting a TV station is to
    A. read a lot about sound waves.
    B. ask the teacher to explain sound waves.
    C. prepare questions on how a show is produced.
    D. watch a lot of TV so they can learn about acting.

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35. If you want your community to build a new playgound, you should go to the
    1. police department.
    2. local government.
    3. state government.
    4. federal government.

PART TWO

Read the following statements and mark the letter on your answer sheet which shows whether you agree (A) or disagree (C) with the statement. If you are not sure of how you feel, the response related to the question mark (B) should be marked.

There are no right or wrong answers. Just show how you feel.

	A	B	C
1. What I learn in English and social studies will help me in my future jobs.	AGREE	?	DISAGREE
2. I am proud of something I did recently.	AGREE	?	DISAGREE
3. All sixth graders should like the same sports.	AGREE	?	DISAGREE
4. A salesperson should like to talk to people.	AGREE	?	DISAGREE
5. You can usually tell if you have had a good day because you feel happy at the end of it.	AGREE	?	DISAGREE
6. A person can learn a great deal from hobbies.	AGREE	?	DISAGREE
7. It is easy to get a good job.	AGREE	?	DISAGREE
8. A person who often gets angry when working with others is probably one who would rather work alone.	AGREE	?	DISAGREE
9. School can help you become aware of your various aptitudes.	AGREE	?	DISAGREE
10. There are only a few careers that are really satisfying.	AGREE	?	DISAGREE
11. Most careers involve a sequence of several different jobs.	AGREE	?	DISAGREE
12. Most countries need to depend on other countries for raw materials or finished products.	AGREE	?	DISAGREE

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	A	B	C
13. Friends should never disagree on important matters.	AGREE	?	DISAGREE
14. When you can see your own worth you are more likely to be able to see other people's worth.	AGREE	?	DISAGREE
15. Learning about advertising techniques helps students become better shoppers.	AGREE	?	DISAGREE
16. City taxes are almost always higher than people feel they should pay.	AGREE	?	DISAGREE
17. Everyone can work easily in groups.	AGREE	?	DISAGREE
18. Choosing a certain job is the only life goal sixth grade students need to think about.	AGREE	?	DISAGREE
19. Going to school is more meaningful when teachers talk about people who are doing certain jobs.	AGREE	?	DISAGREE
20. Working hard at a job is only important if you want to make a lot of money.	AGREE	?	DISAGREE
21. People use science only when they have a job in a scientific field.	AGREE	?	DISAGREE
22. When you make a decision, it is important to consider how that decision affects others.	AGREE	?	DISAGREE
23. Most shoppers are smart consumers.	AGREE	?	DISAGREE
24. There are some things you can learn better outside of school than in school.	AGREE	?	DISAGREE
25. Your friends cannot help you make decisions.	AGREE	?	DISAGREE
26. Career education can only help you to decide what career you should choose.	AGREE	?	DISAGREE
27. The best jobs for women are secretarial, teaching, and nursing.	AGREE	?	DISAGREE
28. Decisions that will affect other people are better made in a group than alone.	AGREE	?	DISAGREE
29. Some of the customs of other countries are different from those of the United States because they are based on different values.	AGREE	?	DISAGREE

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	A	B	C
30. Being able to write and talk in good sentences is only important for someone going to college.	AGREE	?	DISAGREE
31. In a society like ours, resources are unlimited.	AGREE	?	DISAGREE
32. Community pride is something that should be taught in school.	AGREE	?	DISAGREE
33. There are many careers that only women can choose.	AGREE	?	DISAGREE
34. A good worker is someone who sticks to a job even if it is hard.	AGREE	?	DISAGREE
35. People who choose jobs to fit their life-styles are usually happier than those who do not.	AGREE	?	DISAGREE

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GRADE 8 2.3

OHIO CAREER DEVELOPMENT

FINAL TEST
FIELD-BASED ITEMS
1975-76

A DEPARTMENT OF EDUCATIONAL RESEARCH COUNCIL OF AMERICA
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PART ONE

You can help us by giving your answers to the following questions. You will not get a grade on this test. We just want you to try to answer all questions as well as you can.

Read each question to yourself. Then read the choices. Mark the letter on your answer sheet giving the choice which you think is best.

Let's try one.

Which one of these things do people need to live?

A. Games
B. Cars
C. Food
D. Television

Which is the best choice?.... Yes, food is necessary in order to live, so you would mark the letter "C" on your answer sheet.

1. The real test of a personal value is based on what a person
   A. thinks.
   B. feels.
   C. says.
   D. does.

2. Money charged to borrow money is called
   A. usury.
   B. finder's fee.
   C. tuition.
   D. interest.

3. Which of the following workers would you not find in a restaurant?
   A. Hostess
   B. Manager
   C. Bell captain
   D. Busboy

4. The result of a survey about how people feel about a certain person or an idea, is called
   A. an election result.
   B. a public tabulation.
   C. the final opinion.
   D. a consensus.

5. Which of the following is a most likely yearly rate for car insurance for an 18-year-old?
   A. $50
   B. $300
   C. $700
   D. $1000

6. Which of the following is not a place where an interested buyer might look for available cars?
   A. Classified ads
   B. Catalogues
   C. Used car lots
   D. A police auction

7. The most important part of a junior high school science course is learning to use the
   A. laboratory equipment.
   B. safety devices.
   C. chemicals.
   D. scientific method.

8. Which of the following is not a good choice of work places for someone who is interested in child care?
   A. A pediatrician's office
   B. A nursery school
   C. A day care center
   D. An insurance office

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9. A stenographer usually works in
   A. a library.
   B. an office.
   C. an operating room.
   D. a restaurant.

10. The veterinarian's education and training is similar to that of
    A. a nurse.
    B. an X-ray technician.
    C. a doctor.
    D. a therapist.

11. A proprietor is someone who
    A. owns and operates a store.
    B. sells things to small stores.
    C. inspects the books for a store.
    D. decorates store windows.

12. When a restaurant has a franchise, it means the restaurant
    A. has broken a law.
    B. has been recommended to the newspaper.
    C. is part of a large chain of restaurants.
    D. is in debt.

13. A person interested in becoming a secretary should be especially good in
    A. science.
    B. language arts.
    C. math.
    D. foreign language.

14. A person interested in an acting career needs to be able to
    A. sing well.
    B. talk with feeling.
    C. understand a foreign language.
    D. write a story.

15. Which of the following is a part of the hospitality industry?
    A. A hospital
    B. A ski resort
    C. A nursery school
    D. A personnel office

16. A "rookie" is a job for a
    A. veteran.
    B. supervisor.
    C. beginner.
    D. foreman.

17. How well you can do something is usually called an
    A. interest.
    B. intent.
    C. attitude.
    D. aptitude.

18. A person who is persuasive and can speak well might want to become a
    A. writer.
    B. foreman.
    C. salesperson.
    D. scientist.

19. When someone invents something, he or she would desire to have it
    A. taxed.
    B. scrutinized.
    C. patented.
    D. quoted.

20. Which of the following is a more prestigious title for a garbage collector?
    A. Sanitation engineer
    B. Pollution technician
    C. Refuse dispenser
    D. Trash person

21. The changing opportunities for employment in various jobs are reflected most directly by changes in the
    A. job index.
    B. job market.
    C. job prospectus.
    D. stock market.

22. When a car salesperson sells a car he or she is usually paid
    A. a salary.
    B. a commission.
    C. a wage.
    D. a voucher.

23. All the good and bad things you say about yourself reflect your
    A. values.
    B. self-image.
    C. conceit.
    D. beliefs.

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24. A person who makes a living by checking property records is a
   A. land advocate.
   B. title searcher.
   C. real estate agent.
   D. mortgage underwriter.

25. Occupations which deal directly with the public are best suited for people who show strong interest in
   A. facts.
   B. tools.
   C. data.
   D. people.

26. Which of the following is an opinion, not a fact?
   A. Becoming a doctor requires a college degree.
   B. A person must be 18 to vote in Ohio.
   C. A person must go to college to get a good job.
   D. A fourteen-year-old cannot work in a factory.

27. Which of the following is a part of the decision making process?
   A. Gathering information
   B. Knowing what you want
   C. Developing a plan of action
   D. All of the above

28. Which of the following characteristics usually suggest that a student may have mechanical ability?
   A. Good coordination in team sports
   B. An interest in how things are made
   C. Creative imagination in drawing
   D. The ability to express thoughts orally

29. An employer will probably learn the most about your personality and attitude by your
   A. application.
   B. interview.
   C. resume.
   D. reference letters.

30. Which of the following questions would not usually be asked on a job application?
   A. Do you plan to obtain further education?
   B. Where does your father work?
   C. What school subjects did you like best?
   D. Why did you leave your last job?

31. Which of the following traits would be most important for someone looking for a job in almost any area of food service?
   A. A respectful attitude
   B. A likeable personality
   C. Personal cleanliness
   D. Artistic creativity

32. For which of the following might experience on the job be more important than formal education?
   A. Carpentry
   B. Law
   C. Speech therapy
   D. Child care

33. People who buy and sell stocks to make a living are
   A. stock clerks.
   B. stock brokers.
   C. stock salesmen.
   D. stockpersons.

34. Which of these is least necessary when you are furnishing your first apartment?
   A. A stove
   B. A refrigerator
   C. A bed
   D. A washing machine

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PART TWO

Grade 8

Read the following statements and mark the letter on your answer sheet which shows whether you agree (A) or disagree (C) with the statement. If you are not sure of how you feel, the response related to the question mark (B) should be marked.

There are no right or wrong answers. Just show how you feel.

	A	B	C
1. Using individual contracts for social studies projects is a good way to find out how responsible students can be.	AGREE	?	DISAGREE
2. Learning about your values and your abilities is a waste of school study time.	AGREE	?	DISAGREE
3. Salary is the only thing that matters in job satisfaction.	AGREE	?	DISAGREE
4. Friendship is something that just happens.	AGREE	?	DISAGREE
5. Learning about yourself has a lot to do with career choice.	AGREE	?	DISAGREE
6. Personalities can't be changed.	AGREE	?	DISAGREE
7. Success and self-confidence are unrelated.	AGREE	?	DISAGREE
8. People always pick a higher paying job in preference to a lower paying job.	AGREE	?	DISAGREE
9. Career education gives students the opportunity to explore several careers.	AGREE	?	DISAGREE
10. People should make their decisions mainly on the basis of their friends' opinions.	AGREE	?	DISAGREE
11. How to fill out job applications is something you have to learn outside of school.	AGREE	?	DISAGREE
12. A career is the same thing as a job.	AGREE	?	DISAGREE
13. It is important to learn about working conditions and working hours when making a career choice.	AGREE	?	DISAGREE
14. A student who has learned about careers in elementary school can make better decisions about elective classes in high school.	AGREE	?	DISAGREE
15. Disappointment is a feeling that only children and teenagers experience.	AGREE	?	DISAGREE
16. As an eighth grader you're going through so many changes that it's nearly impossible for you to control your actions.	AGREE	?	DISAGREE

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	A	B	C
17. A value should be something you can choose freely.	AGREE	?	DISAGREE
18. Realizing you have failed at something can be as valuable a learning experience as succeeding.	AGREE	?	DISAGREE
19. Career education cannot really influence students' career choices.	AGREE	?	DISAGREE
20. Once you decide on a certain career choice, career education cannot help you in any way.	AGREE	?	DISAGREE
21. A guy who enjoys cooking should consider taking courses in home economics.	AGREE	?	DISAGREE
22. Today's occupations are very similar to those of a hundred years ago.	AGREE	?	DISAGREE
23. Misspelling a word on a job application can affect your chances for employment.	AGREE	?	DISAGREE
24. Eighth grade students often have to make important decisions about their futures.	AGREE	?	DISAGREE
25. Students should not consider careers as teachers or engineers because those jobs are scarce.	AGREE	?	DISAGREE
26. Someone who works for himself doesn't have to be self-disciplined.	AGREE	?	DISAGREE
27. Eighth graders should let others make important decisions for them.	AGREE	?	DISAGREE
28. Only individuals who are successful in school are successful in careers.	AGREE	?	DISAGREE
29. The way you feel about yourself affects the way you behave.	AGREE	?	DISAGREE
30. Hobbies can often lead to career choices.	AGREE	?	DISAGREE
31. The way people feel about their jobs can affect the way they treat their families.	AGREE	?	DISAGREE
32. Many library books contain a lot of information about careers.	AGREE	?	DISAGREE
33. Filling out an interest questionnaire is fun, but it really doesn't help a person to make a career decision.	AGREE	?	DISAGREE
34. Money is a value.	AGREE	?	DISAGREE

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P1.1

GRADE 10

OHIO CAREER DEVELOPMENT

FINAL TEST
FIELD-BASED ITEMS
1975-76

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PART ONE

You can help us by giving your answers to the following questions. You will not get a grade on this test. We just want you to try to answer all questions as well as you can.

Read each question to yourself. Then read the choices. Mark the letter on your answer sheet giving the choice which you think is best.

Let's try one.

Which one of these things do people need to live?

A. Games
B. Cars
C. Food
D. Television

Which is the best choice?.... Yes, food is necessary in order to live, so you would mark the letter "C" on your answer sheet.

1. A person interested in printing materials, designing page layouts, and silk-screening procedures most likely would enjoy a career in
   A. grap[illegible] arts.
   B. newspaper reporting.
   C. advertising.
   D. fine arts.

2. A person writing an editorial has to be especially aware of his or her
   A. compatability.
   B. adaptability.
   C. ego needs.
   D. values.

3. The veterinarian's education and training is similar to that of
   A. a nurse.
   B. an X-ray technician.
   C. a doctor.
   D. a therapist.

4. A person interested in becoming a secretary should be especially good in
   A. science.
   B. language arts.
   C. math.
   D. foreign language.

5. A person who enjoys music and sound systems and is good at math might be interested in a career as
   A. a choreographer.
   B. an acoustical engineer.
   C. a civil engineer.
   D. a disk jockey.

6. Good language skills are necessary for a commercial artist because he or she must often
   A. give lectures.
   B. make oral presentations of his or her work.
   C. write TV commercials.
   D. write newspaper articles.

7. When you get out of school which of the following should be budgeted as an entertainment expense?
   A. Platform shoes
   B. Sirloin steak
   C. A magazine subscription
   D. An extra piece of furniture

8. Being realistic about a career choice means choosing a career that
   A. is approved by your parents.
   B. you have the abilities to meet.
   C. will make the most money.
   D. can be accomplished soon.

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9. A high school student who is interested in becoming a lawyer and is given the opportunity to visit a lawyer and follow his schedule for the day should
   A. read law books in the office.
   B. ask pertinent questions.
   C. observe quietly and not ask questions.
   D. show how much he or she knows.

10. If you're interested in traveling to a foreign country, you can apply for a passport at
   A. a bank.
   B. an airport.
   C. a guidance counselor's office.
   D. a travel agency.

11. Which of the following statements about seasonal workers is not true?
   A. They work periodically throughout the year.
   B. They do not make much money.
   C. They earn many fringe benefits.
   D. They often work in jobs that are concerned with agriculture.

12. Planktonic, pelagic, and sessile are words associated with which of the following professions?
   A. Taxonomist
   B. Surgeon
   C. Tax accountant
   D. Taxidermist

13. Criticism should be given
   A. constructively.
   B. as often as possible.
   C. in a humorous fashion.
   D. indirectly through another person.

14. A brief outline of your training and work experience is called
   A. a biography.
   B. an application.
   C. a resume.
   D. a covering letter.

15. Product price is determined by all of the following except the
   A. law of supply and demand.
   B. rate of inflation.
   C. cost of raw materials.
   D. the law of natural selection.

16. A good credit rating is a sign of
   A. intelligence.
   B. a good job.
   C. a responsible person.
   D. proper upbringing.

17. A person who likes meeting new people and talking with them would probably like to work as
   A. a plant foreman.
   B. a receptionist.
   C. an anthropologist.
   D. an artist.

18. A job such as a county surveyor would be good for you if you
   A. liked being alone.
   B. liked to travel.
   C. were good at math and liked being outdoors.
   D. were interested in economics.

19. A person who likes to likes to help people, likes to travel and can speak a foreign language might be interested in a job such as
   A. cruise director.
   B. hotel manager.
   C. research director.
   D. French teacher.

20. An important aspect of forestry is
   A. sales.
   B. teaching.
   C. writing.
   D. appraisal.

21. A credit manager must have compentancies in which of the following areas?
   A. Selling
   B. Merchandising
   C. Displaying
   D. Communications

22. Which of the following does not usually work for a motel or hotel?
   A. Assistant buyer
   B. Manager
   C. Purchasing agent
   D. Service superintendent

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23. Which of the following might be a good career choice, if you are interested in traveling, writing, and a foreign language?
  A. Accountant
  B. Lawyer
  C. Journalist
  D. Airlines reservationist

24. Career Education is best defined as
  A. job information.
  B. education for application.
  C. education for living.
  D. education for teenagers.

25. What kind of workers are a plumber, carpenter, and a steel worker?
  A. Professional
  B. Unskilled
  C. Skilled
  D. Semi-skilled

26. A value is something you choose because you
  A. are independent of your parents.
  B. have considered its consequences.
  C. have worked for a period of time.
  D. have been forced to choose it.

27. When making a decision among several alternatives, the best alternative is the one that agrees with a person's
  A. values.
  B. parents.
  C. fantasies.
  D. teachers.

28. On an income tax form, the words "number of dependents" mean the number of
  A. benefits withheld.
  B. people a person supports.
  C. insurance policies bought.
  D. medical expenses.

29. Civil service positions usually offer workers the advantage of
  A. job satisfaction.
  B. good fringe benefits.
  C. the opportunity to be creative.
  D. rapid advancement.

30. In which of the following situations can the final decision be made withou considering a value?
  A. What hour to take a music lesson
  B. Which club to join after school
  C. Which food to select from the cafeteria
  D. None of the above

31. Which of the following is not a deduction you can take when filing income taxes?
  A. Family vacation expenses
  B. Medical expenses
  C. Contributions to charities
  D. Interest paid on house mortgage

32. Clarifying your values can help you t
  A. get better grades.
  B. do more homework.
  C. form clearer goals.
  D. join extracurricular activities.

33. The main difference between a resume and an application is that you
  A. shouldn't type an application.
  B. don't have to answer questions on a resume.
  C. can organize how you want to presen your background.
  D. never get much time to think when filling out an application.

34. A physical therapist would probably work closely with
  A. cosmetologists.
  B. pharmacists.
  C. vocational rehabilitation counselor
  D. college professors.

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PART TWO

Grade 10

Read the following statements and mark the letter on your answer sheet which shows whether you agree (A) or disagree (C) with the statement. If you are not sure of how you feel, the response related to the question mark (3) should be marked.

There are no right or wrong answers. Just show how you feel.

	A	B	C
1. The only people who get good jobs are those who go to college.	AGREE	?	DISAGREE
2. Industrial arts is the best course for learning about careers.	AGREE	?	DISAGREE
3. A good attitude on a job can help your chances for promotion.	AGREE	?	DISAGREE
4. Adults do not let their emotions affect their behavior.	AGREE	?	DISAGREE
5. Choosing a career in professional acting is very unrealistic for today's teenager.	AGREE	?	DISAGREE
6. When you are working at a full-time job, you should only think about earning your salary--not about what you can do to earn a promotion.	AGREE	?	DISAGREE
7. It is important to have health insurance when you are a young adult.	AGREE	?	DISAGREE
8. When you apply for a job it is best to use only teachers as references.	AGREE	?	DISAGREE
9. High school business programs are only for women.	AGREE	?	DISAGREE
10. Depression is a feeling that only teenagers experience.	AGREE	?	DISAGREE
11. Physical education classes should help students to decide something about what they want to do with their leisure time.	AGREE	?	DISAGREE
12. The kinds of decisions you make reflect the way you feel about yourself.	AGREE	?	DISAGREE
13. A person who makes $15,000 a year can be as successful as one who makes only $10,000 a year.	AGREE	?	DISAGREE
14. It is important for you to evaluate your own work on a job.	AGREE	?	DISAGREE

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	A	B	C
15. Tenth grade is not too soon to be thinking about a career.	AGREE	?	DISAGREE
16. A good worker tries to meet deadlines in spite of the difficulties involved.	AGREE	?	DISAGREE
17. When you are working at a job, it is all right to make mistakes often as long as you are willing to correct them.	AGREE	?	DISAGREE
18. Math is a subject that applies to only a few careers.	AGREE	?	DISAGREE
19. Before making decisions, students should have an understanding of their own value systems.	AGREE	?	DISAGREE
20. You feel that you can make decisions about how you will live during the next several years.	AGREE	?	DISAGREE
21. You could have done something to make the past week better.	AGREE	?	DISAGREE
22. Tenth graders should be able to find the career information that a library has available.	AGREE	?	DISAGREE
23. You shouldn't try to learn how to fill out income tax forms until you take a full-time job.	AGREE	?	DISAGREE
24. A student who has learned about careers in elementary school can make better decisions about elective classes in high school.	AGREE	?	DISAGREE
25. It is better to be self-employed than to work for someone else.	AGREE	?	DISAGREE
26. Part of decision-making is being able to be proud of your decision after you have made it.	AGREE	?	DISAGREE
27. Learning decision-making skills increases the possibility that each person can achieve that which he or she values.	AGREE	?	DISAGREE
28. Analyzing their strength and weakness helps students to make career choices.	AGREE	?	DISAGREE
29. It is usually better to choose a college to attend and then choose a career.	AGREE	?	DISAGREE

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	A	B	C
30. An important change in adolescence is that an individual tends to value his or her own opinion more.	AGREE	?	DISAGREE
31. Most of the decisions you make are based on your values.	AGREE	?	DISAGREE
32. Learning about the life-style of a person in a certain occupation can help you make a better career decision.	AGREE	?	DISAGREE
33. Knowing how to speak or write in a foreign language could help a person obtain employment in a few professions.	AGREE	?	DISAGREE
34. A person who avoids making a decision may have to face a series of related decisions later on.	AGREE	?	DISAGREE

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APPENDIX C

SUMMARY OF LEARNER OUTCOME RESULTS FOR LOCAL PROJECT AND ETHNICITY GROUP LEVELS OF AGGREGATION

APPENDIX C

SUMMARY OF LEARNER OUTCOME RESULTS FOR LOCAL PROJECT AND ETHNICITY GROUP LEVELS OF AGGREGATION

This appendix contains the following sets of tables, organized by grade level:

- Pre- and posttest means and standard deviations for target and, where appropriate, nontarget students on the outcome measures for each of the projects included in the evaluation.
- The effects of exposure on the learner outcome constructs, the SOS-based constructs, the affective and cognitive growth discriminants, reading and math achievement, and intact tests for target students in each of the fifteen projects.
- Pre- and posttest means and standard deviations for white and black target and nontarget students on the outcome measures aggregated across projects.
- The effects of exposure on the learner outcome constructs, the SOS-based constructs, the affective and cognitive growth discriminants, and intact tests for white and black target students.

Within each grade level set of tables, the tables are presented in the following order:

- Pre-post means and standard deviations for black and white students.
- Effects of exposure for black and white students.
- Pre-post means and standard deviations and effects of exposure for each project. The projects are arranged in the order used in Chapter 5, Volume II, to facilitate comparison.

The reader is invited to review pages 6.31 and 6.32 of Chapter 6, Volume II for a description of the presentation and format of these tables.

Grade 5: Black

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	12.3 (371)	7.5	14.7 (140)	6.3	14.4 (228)	6.7	15.0 (81)	7.5
Work Values	31.3 (403)	4.2	32.0 (152)	3.9	31.4 (346)	4.3	33.2 (110)	4.6
Interest in Career Preparation								
Attitudes Toward Work	23.2 (386)	4.6	24.6 (140)	4.4	25.2 (238)	4.8	25.5 (78)	5.1
Knowledge of Work Values	36.2 (375)	3.5	37.2 (132)	3.1	36.6 (230)	4.0	37.1 (76)	43
Decision Making								
Job Seeking/ Job Getting	44.9 (361)	3.8	45.9 (133)	4.1	45.6 (117)	4.5	45.2 (59)	3.3
Career Awareness	18.2 (462)	2.5	19.0 (148)	2.3	19.5 (382)	2.5	19.0 (107)	2.3
Economic Awareness	7.7 (395)	1.6	7.6 (146)	1.6	8.3 (285)	1.8	8.1 (102)	1.7
Academic Perceptions	46.4 (450)	9.1	49.3 (83)	8.3	47.5 (450)	9.9	51.3 (83)	10.1
Social/Personal Perceptions	53.9 (450)	9.4	50.9 (83)	9.9	50.8 (450)	10.6	49.3 (83)	10.4

Grade 5: Black

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.755 (20,109)	.191	.211	.120	20(-.19),5(.18),14(-.16),1(-.14),11(.10)
Work values	1.320 (20,200)	.104	.109	.067	10(-.18),16(.15),2(-.14),11(.13),5(.11)
Interest in career preparation					
Atittudes towards work	1.083 (20,119)	.129	.136	.111	20(-.21),8(-.14),10(-.11),2(-.11),19(-.10)
Knowledge of work values	1.023 (20,110	.124	.137	.111	20(-.20),16(.16),11(.15),17(.15),10(-.09)
Decision making					
Job seeking/job getting	1.899 (20,67)	.263	.304	.139	17(.25),1(-.22),7(.20),12(.16),3(.16)
Career awareness	2.260 (20,226)	.141	.155	.001	10(-.20),4(-.19),12(-.14),15(-.13),14(-.13)
Economic awareness	1.105 (20,159)	.098	.111	.011	5(.18),11(.14),6(.13),18(.11).16(.09)
Academic perceptions	1.148 (20,270)	.053	.076	.020	14(-.165),5(.093),8(-.077),10(-.070),11(.067)
Social/personal perceptions	.972 (20,270)	.047	.061	.071	12(.141),19(.125),20(.124),17(.120),15(.120)
Ohio, Part 1	1.936 (20,188)	.135	.158	.067	
Ohio, Part 2	.878 (20,150)	.091	.095	.082	
PECE	1.221 (20,44)	.266	.280	.205	
New Mexico One	2.560 (20,200)	.172	.188	.072	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.457 (20,118)	.139	.169	.120	
Affective growth discriminant	1.843 (20,117)	.213	.218	.090	

Grade 5: White
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness	17.7 (1539)	5.8	16.5 (321)	5.6	18.6 (1232)	5.7	17.3 (187)	6.3
Work Values	34.8 (1622)	4.0	33.7 (343)	4.3	35.4 (1466)	4.1	34.6 (277)	4.4
Interest in Career Preparation								
Attitudes Toward Work	28.6 (1550)	5.3	27.0 (323)	5.5	30.8 (1268)	5.2	27.5 (186)	5.4
Knowledge of Work Values	3916 (1768)	3.6	38.8 (327)	3.7	41.0 (1212)	3.6	39.1 (185)	4.2
Decision Making								
Job Seeking/ Job Getting	49.9 (1469)	5.6	48.3 (318)	5.4	4916 (484)	5.8	48.6 (157)	5.4
Career Awareness	20.6 (1592)	2.1	20.3 (331)	2.1	21.0 (1448)	1.9	20.3 (213)	2.5
Economic Awareness	8.6 (1821)	1.8	8.3 (338)	1.8	9.2 (1541)	1.7	8.7 (230)	1.9
Academic Perceptions	52.6 (1496)	9.5	50.7 (205)	9.0	53.3 (1496)	9.8	52.4 (205)	9.8
Social/Personal Perceptions	49.5 (1496)	9.3	49.4 (205)	9.5	48.2 (1496)	9.8	47.0 (205)	10.0

Grade 5: White

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.586 (20,721)	.033	.040	.037	17(.10),19(.08),5(.08),16(.08),15(-.07)
Work values	1.681 (20,934)	.030	.034	.014	17(.13),16(.08),3(.08),18(.07),5(.06)
Interest in career preparation					
Attitudes towards work	1.681 (20,747)	.028	.042	.011	2(-.10),5(.08),12(-.08),16(.06),1(.06)
Knowledge of work values	2.844 (20,711)	.050	.071	.027	16(.11),9(-.10),15(-.10),20(-.09),18(.08)
Decision making					
Job seeking/job getting	1.960 (20,245)	.076	.120	.080	9(-.22),12(-.12),7(-.12),15(-.11),20(-.09)
Career awareness	2.148 (20,914)	.036	.043	.021	15(-.11),20(-.07),8(-.07),14(-.06),2(-.06)
Economic awareness	1.706 (20,948)	.030	.034	.017	13(-.08),16(.07),15(-.07),14(-.07),18(.07)
Academic perceptions	2.200 (20,936)	.027	.043	.019	11(.093),20(-.076),9(-.070),1(.068),3(.060)
Social/personal perceptions	1.966 (20,936)	.031	.039	.022	20(-.08[illegible]),11(.075),17(.074),2(.068),16(.066)
Ohio, Part 1	2.040 (20,868)	.025	.044	.013	
Ohio, Part 2	0.926 (20,741)	.022	.024	.042	
PECE	0.900 (20,207)	.048	.071	.082	
New Mexico One	2.008 (20,934)	.031	.040	.020	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.377 (20,626)	.024	.041	.020	
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Opportunity City

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	17.2 (105)	5.2	19.2 (107)	5.3
Work Values	33.6 (115)	3.9	35.7 (111)	3.7
Interest in Career Preparation				
Attitudes Toward Work	27.9 (106)	5.1	29.1 (107)	5.1
Knowledge of Work Values	38.8 (107)	3.5		
Decision Making				
Job Seeking/ Job Getting	47.8 (101)	4.9		
Career Awareness	20.2 (109)	1.9	20.5 (112)	2.0
Economic Awareness	8.2 (111)	1.6		
Academic Perceptions	52.9 (83)	9.2	51.8 (83)	10.3
Social/Personal Perceptions	50.0 (83)	8.9	47.7 (83)	13.2
Reading Achievement				
Math Achievement				

Grade 5: Opportunity City

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

onstructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness	.636 (20, 42)	.103	.142	.280	12(-.20),18(-.15),14(-.14),13(-.14),4(-.12)
ork values	.940 (20, 47)	.184	.209	.236	3(.23),6(.19),5(.13),17(.13),1(.09)
nterest in career preparation					
ttitudes towards work	1.250 (20, 40)	.170	.310	.107	12(-.27),3(.26),15(.25),2(-.15),16(.13)
nowledge of work values					
ecision making					
ob seeking/job getting					
areer awareness					
conomic awareness					
cademic perceptions	— (20, 28)	.338	.760	.107	8(-.42),14(-.41),20(-.40),17(-.38),7(-.34)
ocial/personal perceptions	— (20, 28)	.355	.564	.274	12(-.39),14(-.30),8(-.30),20(-.27),7(-.23)
eading achievement					
ath achievement					
hio, Part 1	1.27 (20, 42)	.094	.285	.080	
hio, Part 2	.731 (20, 42)	.177	.206	.175	
ECE					
ew Mexico One	2.09 (20, 47)	.237	.315	.249	
ew Mexico Six (1-10)					
ew Mexico Six (11-20)					
ew Mexico Two, Seven, Eight					
ognitive growth discriminant					
ffective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Jobland

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	16.0 (485)	7.2	17.3 (446)	6.3
Work Values	33.8 (508)	4.3	34.5 (477)	
Interest in Career Preparation				
Attitudes Toward Work	26.8 (496)	5.2	29.3 (454)	5.6
Knowledge of Work Values	38.7 (472)	3.8	39.7 (403)	4.0
Decision Making				
Job Seeking/ Job Getting	48.7 (470)	5.5	48.4 (298)	5.6
Career Awareness	19.8 (498)	2.4	20.5 (468)	2.2
Economic Awareness	8.2 (497)	1.7	8.9 (469)	1.7
Academic Perceptions	50.1 (456)	10.2	51.4 (456)	10.1
Social/Personal Perceptions	49.7 (456)	9.7	48.0 (456)	10.3
Reading Achievement	48.4 (527)	10.0	47.8 (527)	11.1
Math Achievement	49.7 (527)	9.8	49.4 (527)	10.4

Grade 5: Jobland

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.424 (20, 224)	.075	.097	.108	7(-.13),1(-12),12(-.10),16(.10),8(.09)
Work values	1.209 (20, 249)	.070	.080	.085	1(-.15),15(-.14),10(-.10),2(-.09),13(.08)
Interest in career preparation					
Atittudes towards work	1.359 (20, 230)	.065	.090	.104	12(-.16),7(-.16),15(-.15),2(-.14),11(-.13)
Knowledge of work values	1.583 (20, 200)	.082	.118	.096	7(-.20),9(-.16),11(-.14),6(-.13),15(-.12)
Decision making					
Job seeking/job getting	1.672 (20, 118)	.123	.178	.134	4(-.23),2(-.21),9(-.20),15(-.20),13(-.20)
Career awareness	1.450 (20, 237)	.081	.097	.088	7(-.27),15(-.27),13(-.18),12(-.16),10(-.16)
Economic awareness	1.476 (20,247)	.093	.100	.063	12(-.14),2(-.13),8(.13),13(-.12),10(-.11)
Academic perceptions	1.959 (20, 249)	.076	.121	.068	11(.15),9(-.11),14(-.10),15(-.10),8(-.09)
Social/personal perceptions	1.000 (20, 249)	.058	.068	.070	19(.11),13(.11),20(-.09),12(.08),11(.07)
Reading achievement	1.272 (20, 277)	.018	.077	.020	2(-.12),16(.11),15(-.10),10(-.09),14(-.08)
Math achievement	1.073 (20, 277)	.021	.066	.025	2(-.15),1(-.11),6(-.11),12(-.11),9(-.10)
Affective discriminant					
Ohio, Part 1	22.794 (20, 232)	.094	.145	.046	
Ohio, Part 2	1.652 (20, 231)	.103	.104	.166	
PECE					
New Mexico One	1.208	.062	.078	.093	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.772 (20, 220)	.119	.178	.007	
Affective growth discriminant	1.826 (20, 220)	.093	.131	.057	

Target Students' Learner Outcome
Pre- and Posttest Scores

Grade 5: Workville

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness				
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values	40.2 (275)	3.2	41.7 (220)	3.0
Decision Making				
Job Seeking/ Job Getting				
Career Awareness				
Economic Awareness	8.8 (279)	1.8	9.6 (270)	1.7
Academic Perceptions	54.1 (185)	7.9	55.6 (185)	8.3
Social/Personal Perceptions	51.0 (185)	7.7	51.0 (185)	8.2
Reading Achievement	54.8 (278)	9.7	54.3 (278)	11.2
Math Achievement	53.8 (278)	9.2	52.5 (278)	10.5

Grade 5: Workville

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness					
ork values					
nterest in career preparation					
ttitudes towards work					
nowledge of work values	1.743 (20, 106)	.170	.213	.112	16(2.0),5(.20),1(.18),6(.18),14(.16)
ecision making					
ob seeking/job getting					
areer awareness					
conomic awareness	.899 (20, 139)	.085	.105	.071	12(-.17),7(-.14),13(-.13),15(-.12),6(.10)
cademic perceptions	1.902 (20, 86)	.119	.230	.129	9(.29),3(.23),12(.17),5(.16),20(.15)
ocial/personal perceptions	1.306 (20, 86)	.154	.188	.160	3(.22),17(.21),6(.18),19(.17),4(.16)
eading achievement	.675 (20, 146)	.045	.070	.107	10(-.12),6(.08),9(-.08),18(.08),5(.08)
ath achievement	.976 (20, 146)	.052	.106	.051	20(.11),8(-.10),19(-.10),13(.10),10(-.09)
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Treksville

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness				
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values				
Decision Making				
Job Seeking/ Job Getting				
Career Awareness	18.1 (88)	2.6	19.8 (91)	2.4
Economic Awareness				
Academic Perceptions	48.9 (91)	9.4	52.3 (91)	8.5
Social/Personal Perceptions	54.6 (91)	8.5	51.4 (91)	8.6
Reading Achievement				
Math Achievement				

Grade 5: Treksville

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness					
ork values					
nterest in career preparation					
ttitudes towards work					
nowledge of work values					
ecision making					
Job seeking/job getting					
areer awareness	2.100 (20, 20)	.439	.486	.255	13(-.38),12(-.33),7(-.32),4(-.25),2(-.23)
conomic awareness					
cademic perceptions	.687 (20, 24)	.162	.260	.179	4(-.21),10(-.17),13(.17),9(-.16),17(.16)
ocial/personal perceptions	2.253 (20, 24)	.430	.483	.231	17(.31),1(.27),3(.27),20(.2[illegible]),8(.23)
eading achievement	1.136 (20, 37)	.247	.268	.293	9(-.25),6(.22),20(-.20),5(.15),2(.13)
ath achievement	1.049 (20, 37)	.245	.252	.295	11(.1[illegible]),[illegible](-.13),20(-.12),4(.12),3(.10)
Ohio, Part 1	.152 (20, 12)	.022	.038	.277	
Ohio, Part 2	3.483 (20, 3)	.418	.503	.393	
FECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Fallstaff

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	18.7 (304)	4.9	18.7 (295)	5.3
Work Values	35.8 (313)	3.5	35.7 (308)	3.4
Interest in Career Preparation				
Attitudes Toward Work	29.8 (304	5.0	32.0 (298)	4.3
Knowledge of Work Values	40.2 (304)	3.1	41.7 (141)	3.1
Decision Making				
Job Seeking/ Job Getting	51.5 (299)	5.4	51.5 (79)	5.6
Career Awareness	21.1 (304)	1.9	21.5 (295)	1.7
Economic Awareness	9.0 (305)	1.6	9.3 (300)	1.6
Academic Perceptions	54.0 (249)	8.6	52.3 (249)	10.5
Social/Personal Perceptions	51.0 (249)	8.9	47.1 (249)	10.1
Reading Achievement	47.6 (361)	4.8		
Math Achievement	39.8 (361)	4.8		

Grade 5: Fallstaff

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

ts	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ional self-awareness	1.091 (20, 29)	.143	.210	.348	1(-.24),16(.17),2(.16),17(.13),9(-.11)
lues	1.759 (20, 32)	.299	.357	.266	9(-.23),11(.20),18(.20),20(.15),4(.15)
t in career preparation					
es towards work	1.465 (20, 30)	.211	.335	.203	11(.22),19(-.18),1(.14),2(-.13),5(-.12)
ge of work values	.801 (20,13)	.323	.380	.264	5(-.28),16(-.26),1(-.25),18(.24),2(.18)
n making					
king/job getting					10(-.78),9(-.72),7(-.64),5(.63),18(.56)
awareness	.809 (20, 29)	.221	.267	.210	19(-.24),6(-.23),7(-.19),15(-.18),5(-.18)
c awareness	1.958 (20, 28)	.393	.454	.192	5(-.35),16(-.30),19(-.24),15(-.19),11(-.16)
c perceptions					6(.54),15(.47),10(.45),1(.45),7(.37)
personal perceptions					2(-.70),14(-.51),3(.47),12(-.43),8(.43)
achievement					
hievement					
Part 1	2.887 (20, 29)	.223	.483	.127	
Part 2	1.556 (20, 28)	.378	.429	.164	
xico One	1.204 (20, 31)	.188	.307	.182	
xico Six (1-10)					
xico Six (11-20)					
xico Two, Seven, Eight					
ive growth discriminant	2.013 (20, 20)	.302	.511	.139	
ive growth discriminant	1.587 (20, 26)	.188	.285	.318	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Vocation Beach

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	13.6 (134)	8.0	18.7 (16)	4.9
Work Values	3.1 (142)	4.7	30.3 (136)	4.5
Interest in Career Preparation				
Attitudes Toward Work	22.6 (139)	4.6	25.3 (21)	4.6
Knowledge of Work Values	35.6 (131)	3.5	35.3 (27)	4.3
Decision Making				
Job Seeking/ Job Getting	45.0 (129)	3.7	45.5 (22)	3.9
Career Awareness	18.6 (140)	2.6	18.6 (78)	2.4
Economic Awareness	8.0 (140)	1.8	8.2 (32)	2.0
Academic Perceptions	46.9 (128)	9.3	44.6 (128)	11.5
Social/Personal Perceptions	53.0 (128)	10.1	50.8 (128)	10.9
Reading Achievement	41.7 (146)	9.5	42.6 (146)	10.6
Math Achievement	44.2 (146)	9.1	43.8 (146)	8.6

Grade 5: Vocation Beach

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
. self-awareness					3(.67),8(.64),16(.55),20(-.49),19(.40)
	1.432 (20, 59)	.216	.246	.218	10(-.31),7(-.22),6(.21),2(-.21),19(.17)
career preparation					
wards work					2(-.64),11(.49),4(.30),18(.30),16(.29)
work values					19(.65),7(-.58),6(.50),17(.48),1(.43)
ing					
job getting					18(-.59),8(-.56),5(-.55),1(-.40),2(-.39)
ness	1.36 (20, 17)	.264	.488	.112	7(-.39),10(-.37),12(-.32),8(-.31),2(-.28)
reness					12(-.46),3(-.41),14(-.37),7(-.36),4(-.33)
ceptions	1.506 (20, 56)	.185	.264	.172	7(-.17),11(-.15),10(-.13),1(-.12),14(-.11)
nal perceptions	1.795 (20, 56)	.193	.268	.227	2(.26),15(.25),13(.21),3(.20),12(.15)
evement	2.807 (20, 63)	.188	.353	.133	7(-.41),12(-.37),2(-.35),13(-.33),20(-.28)
ment	2.376 (20, 63)	.224	.324	.170	7(-.33),10(-.31),13(-.31),3(-.31),2(-.31)
1					
2					
ne	1.675 (20, 59)	.214	.259	.234	
ix (1-10)					
ix (11-20)					
wo, Seven, Eight					
owth discriminant					
owth discriminant					

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Unique Domain

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	13.4 (108)	6.2	14.5 (18)	5.6	15.0 (76)	6.1	12.0 (13)	7.7
Work Values	32.1 (113)	4.2	33.9 (20)	2.9	32.5 (109)	4.5	32.7 (14)	5.6
Interest in Career Preparation								
Attitudes Toward Work	24.3 (109)	4.5	24.5 (19)	4.7	26.0 (84)	4.3	22.6 (13)	4.4
Knowledge of Work Values	36.5 (108)	3.3	36.8 (20)	3.9	37.4 (80)	4.4	35.7 (11)	4.6
Decision Making								
Job Seeking/ Job Getting	46.0 (101)	3.8	46.3 (18)	4.9	48.1 (53)	5.1	45.3 (7)	3.7
Career Awareness	18.9 (110)	2.9	18.5 (19)	2.0	20.2 (101)	2.5	19.1 (17)	2.2
Economic Awarenss	7.9 (111)	1.7	8.4 (10)	1.3	8.5 (92)	1.7	8.1 (15)	1.8
Academic Perceptions	47.1 (169)	9.6			48.1 (169)	9.1		
Social/Personal Perceptions	52.3 (169)	10.2			51.7 (169)	10.0		
Reading Achievement	45.3 (174)	8.0			46.2 (174)	6.2		
Math Achievement	46.2 (174)	8.2			48.3 (174)	6.2		

Grade 5: Unique Domain

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

onstructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness	2.419 (20, 15)	.516	.531	.295	20(-.48),18(-.26),10(-.22),1(-.21),7(-.16)
ork values	1.602 (20, 35)	.389	.391	.182	16(.32),17(.25),10(-.24),11(.23),9(-.20)
nterest in career preparation					
ttitudes towards work	.679 (20, 24)	.302	.307	.149	12(-.28),6(-.25),18(-.23),1(-.22),8(-.21)
nowledge of work values	1.631 (20, 19)	.563	.565	.106	20(-.36),6(.28),16(.24),3(.22),11(.21)
ecision making					
ob seeking/job getting					12(.23),19(.22),6(.22),17(.18),1(-.18)
areer awareness	1.460 (20, 30)	.338	.352	.274	6(.33),11(.27),12(.25),5(.19),16(.17)
conomic awareness	2.455 (20, 27)	.471	.476	.259	6(.36),13(.35),15(.33),12(.33),11(.31)
cademic perceptions	1.194 (20, 67)	.165	.227	.099	11(.21),2(.15),10(.14),17(-.12),3(-.12)
ocial/personal perceptions	1.067 (20, 67)	.156	.208	.105	15(.22),10(.18),20(.18),3(-.16),14(.12)
eading achievement	2.093 (20, 77)	.255	.299	.129	6(.29),18(.27),10(-.22),19(.21),11(.20)
ath achievement	.838 (20, 77)	.102	.118	.293	4(-.18),20(-.17),10(-.14),6(.12),11(.12)
Ohio, Part 1	1.427 (20, 19)	.362	.393	.340	
Ohio, Part 2	1.141 (20, 14)	.422	.432	.295	
PECE					
New Mexico One	1.458 (20, 35)	.369	.373	.177	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.770 (20, 23)	.448	.504	.255	
Affective growth discriminant	1.137 (20, 18)	.394	.395	.291	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Mt. Exploration

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	15.5 (150)	7.7	17.6 (144)	7.0
Work Values	33.6 (158)	4.4	35.1 (150)	4.6
Interest in Career Preparation				
Attitudes Toward Work	26.8 (154)	5.7	29.1 (146)	5.7
Knowledge of Work Values	38.7 (150)	3.9	40.0 (110)	4.2
Decision Making				
Job Seeking/ Job Getting	48.6 (148)	5.9	48.5 (46)	6.1
Career Awareness	20.3 (155)	2.4	20.6 (149)	2.3
Economic Awareness	7.9 (156)	1.7	8.4 (146)	1.8
Academic Perceptions	49.4 (80)	10.0	51.5 (80)	11.9
Social/Personal Perceptions	47.2 (80)	10.5	47.1 (80)	10.5
Reading Achievement				
Math Achievement				

Grade 5: Mt. Exploration

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

onstructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness	2.010 (20, 73)	.220	.298	.119	18(.25),3(.25),19(.25),4(.23),5(.21)
ork values	1.310 (20, 33)	.156	.202	.123	7(.20),3(.19),18(.16),4(.16),6(-.14)
nterest in career preparation					
ttitudes towards work	1.920 (20, 76)	.163	.273	.113	18(.25),5(.22),9(-.21),17(.17),6(.16)
nowledge of work values	1.980 (20, 47)	.165	.359	.098	8(.31),3(.30),4(.29),18(.28),2(.23)
ecision making					
ob seeking/job getting					12(-.27),17(.27),9(-.19),13(-.19),16(.19)
areer awareness	1.610 (20, 79)	.167	.228	.155	14(-.34),13(-.20),17(.19),10(-.18),2(-.17)
conomic awareness	1.280 (20, 80)	.180	.212	.108	18(.26),11(.20),8(.17),16(.16),12(-.14)
cademic perceptions	2.739 (20, 24)	.331	.455	.252	9(-.39),20(-.28),15(-.26),14(-.25),10(-.25)
ocial/personal perceptions	2.074 (20, 24)	.363	.404	.325	18(.32),7(.26),6(-.18),17(.17),15(-.16)
eading achievement					
ath achievement					
Ohio, Part 1	2.844 (20, 72)	.211	.381	.076	
Ohio, Part 2	2.120 (20, 72)	.277	.310	.144	
PECE					
New Mexico One	.930 (20, 83)	.101	.160	.079	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.627 (20, 56)	.165	.339	.038	
Affective growth discriminant	1.968 (20, 74)	.209	.306	.081	

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Prepton

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	16.9 (132)	5.8	16.8 (171)	5.6	19.1	4.7	17.5 (157)	6.7
Work Values	33.9 (135)	4.1	33.7 (172)	4.4	34.3 (129)	4.5	35.1 (166)	4.4
Interest in Career Preparation								
Attitudes Toward Work	26.5 (135)	5.1	26.4 (168)	5.6	28.3 (126)	5.4	27.8 (155)	5.5
Knowledge of Work Values	38.7 (132)	3.5	38.7 (166)	3.6	40.2 (84)	3.7	39.4 (140)	4.4
Decision Making								
Job Seeking/ Job Getting	48.2 (127)	5.0	48.4 (166)	5.9	48.8 (49)	5.9	47.5 (114)	5.6
Career Awareness	20.1 (134)	2.0	20.1 (169)	2.2	20.4 (130)	2.1	19.8 (162)	2.8
Economic Awareness	8.2 (132)	1.8	8.3 (172)	1.9	9.0 (124)	1.8	8.5 (159)	1.9
Academic Perceptions	49.1 (131)	10.2	50.1 (164)	9.1	52.3 (131)	10.1	51.9 (164)	10.1
Social/Personal Perceptions	48.3 (131)	10.9	49.1 (164)	9.7	45.7 (131)	10.6	47.2 (164)	9.7
Reading Achievement								
Math Achievement								

Grade 5: Prepton

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.320 (20, 68)	.206	.222	.192	14(-.27),2(-.24),15 (-.16),3(.16),13(-.15)
Work values	1.730 (20, 73)	.252	.274	.134	2(-.20),15(-.14),3(.13),13(-.13),8(.13)
Interest in career preparation					
Atittudes towards work	.916 (20, 71)	.136	.176	.111	3(.20),8(.17),18(-.17),1(.15),17(.13)
Knowledge of work values	.445 (20,68)	.135	.155	.189	4(.18),3(.14),17(.13),19(-.13),13(-.13)
Decision making					
Job seeking/job getting					1(.31),5(-.27),3(.26),7(-.23),18(-.20)
Career awareness	1.790 (20, 73)	.230	.883	.226	10(-.24),6(-.14),5(.13),17(.12),1(-.12)
Economic awareness	1.830 (20, 67)	.230	.263	.221	7(.26),12(.22),9(.22),10(.21),15(.19)
Academic perceptions	1.098 (20, 76)	.091	.173	.105	11(.19),3(.19),2(.13),8(.13),16(.13)
Social/personal perceptions	1.890 (20, 76)	.186	.252	.178	3(.22),11(.22),8(.18),16(.18),6(.15)
Reading achievement					
Math achievement					
Ohio, Part 1	0.898 (20, 68)	.116	.148	.227	
Ohio, Part 2	1.040 (20, 70)	.181	.184	.196	
PECE					
New Mexico One	1.993 (20, 73)	.237	.270	.207	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.347 (20, 38)	.202	.273	.253	
Affective growth discriminant	0.479	.099	.115	.074	

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Studytown

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X (N)	SD	X (N)	SD	X (N)	SD	X (N)	SD
Occupational Self-Awareness	15.8 (234)	7.0	14.7 (300)	6.2				
Work Values	33.8 (252)	4.1	32.6 (329)	4.4	33.7 (42)	5.1	34.7 (166)	4.2
Interest in Career Preparation								
Attitudes Toward Work	27.0 (233)	5.7	25.9 (299)	5.3				
Knowledge of Work Values	38.2 (210)	4.2	37.7 (289)	3.7	39.5 (34)	4.2	38.2 (13)	3.0
Decision Making								
Job Seeking/ Job Getting	46.9 (196)	5.0	46.9 (280)	4.4				
Career Awareness	19.7 (244)	2.3	19.7 (317)	2.3	20.9 (77)	1.8	19.6 (70)	2.7
Economic Awareness	7.9 (228)	1.7	7.8 (310)	1.6	8.6 (122)	1.7	8.5 (86)	1.9
Academic Perceptions	51.5 (47)	8.7	48.3 (151)	9.7	49.2 (47)	8.9	51.7 (151)	9.1
Social/Personal Perceptions	50.1 (47)	9.6	51.7 (151)	9.0	46.7 (47)	10.4	50.0 (151)	9.7
Reading Achievement	45.5 (263)	10.2	42.6 (402)	11.1	51.1 (263)	10.4	49.4 (402)	10.7
Math Achievement	30.5 (263)	8.5	32.6 (402)	9.9	48.6 (263)	10.7	47.3 (402)	11.0

Grade 5: Studytown

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					16(.52),20(-.31),10(-.30),7(-.29),14(-.28)
Interest in career preparation					
Attitudes towards work					
Knowledge of work values					10(.42),19(-.39),11(.31),17(-.29),(-.28)
Decision making					
Job seeking/job getting					
Career awareness	.597 (20, 27)	.219	.221	.276	20(-.21),14(-.19),5(.18), 19(-.17),3(.15)
Economic awareness	1.645 (20, 50)	.304	.334	.144	14(-.35),13(-.31),9(-.25),4(-.23),15(-.15)
Academic perceptions				.408	17(.48),18(.33),16(.32),10(-.27),3(.26)
Social/personal perceptions				.394	3(.37),12(.35),5(.34),6(.33),18(.33)
Reading achievement	2.139 (20, 185)	.114	.163	.091	8(-.21),18(.18),14(-.14),7(-.14),12(-.14)
Math achievement	1.109 (20, 185)	.091	.102	.039	18(.20),16(.15),3(.14),8(-.10),6(.09)
Ohio, Part 1	.878 (20, 13)	.441	.476	.160	
Ohio, Part 2	1.062 (20, 9)	.371	.409	.378	
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Cognitive Camp

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	14.5 (105)	7.5	15.0 (109)	6.3	14.7 (129)	6.8	16.2 (116)	6.3
Work Values	32.0 (136)	4.9	32.6 (118)	4.0	33.0 (136)	4.5	32.8 (121)	4.6
Interest in Career Preparation								
Attitudes Toward Work	24.8 (112)	5.1	25.6 (113)	4.5	26.7 (130)	5.1	26.0 (114)	4.9
Knowledge of Work Values	36.6 (117)	3.5	37.4 (111)	3.8	37.0 (120)	3.7	37.9 (117)	3.9
Decision Making								
Job Seeking/ Job Getting	46.1 (112)	4.4	46.6 (109)	4.7	46.8 (114)	4.6	47.9 (112)	4.8
Career Awareness	19.3 (131)	2.5	19.5 (114)	2.2	20.0 (129)	2.0	20.1 (118)	2.0
Economic Awareness	8.2 (130)	1.8	8.1 (118)	1.7	8.3 (132)	1.8	8.5 (120)	1.9
Academic Perceptions	48.1 (120)	10.5	49.3 (48)	8.9	52.3 (120)	9.7	49.6 (48)	10.9
Social/Personal Perceptions	53.1 (120)	9.7	45.1 (48)	11.0	49.0 (120)	9.8	44.5 (48)	12.5
Reading Achievement								
Math Achievement								

Grade 5: Cognitive Camp

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	.606 (20, 32)	.173	.203	.223	5(.24),19(.20),3(.14),17(.13),4(.13)
Work values	.992 (20, 57)	.191	.215	.141	18(.22),20(.18),17(.15),3(.15),13(-.14)
Interest in career preparation					
Attitudes towards work	.866 (20, 38)	.215	.241	.205	5(.24),10(.20),4(.20),18(.17),3(.14)
Knowledge of work values	1.620 (20, 37)	.341	.376	.175	16(.41),2(-.30),6(-.25),1(-.19),17(-.17)
Decision making					
Job seeking/job getting	.651 (20, 28)	.161	.201	.294	12(-.30),10(.18),3(.17),16(-.15),5(.15)
Career awareness	2.410 (20, 50)	.245	.296	.330	12(-.34),15(-.29),2(-.23),11(-.20),9(-.18)
Economic awareness	1.350 (20, 52)	.227	.267	.186	16(.24),7(-.20),12(-.20),15(-.19), 13(-.16)
Academic perceptions	.711 (20, 48)	.090	.165	.152	11(-.20),14(-.19),10(.16),17(-.16),17(.10)
Social/personal perceptions	1.387 (20, 48)	.211	.282	.171	19(.23),15(.21),1(.17).12(.15),8(.14)
Reading achievement					
Math achievement					
Ohio, Part 1	0.537 (20, 44)	.110	.136	.247	
Ohio, Part 2	0.830 (20, 28)	.236	.258	.279	
PECE					
New Mexico One	0.741 (20, 57)	.143	.161	.196	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.047 (20, 38)	.205	.230	.314	
Affective growth discriminant	1.336 (20, 28)	.272	.311	.318	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Middlesex

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	17.8 (75)	5.4	18.1 (68)	6.3
Work Values	35.4 (80)	3.4	35.4 (74)	3.3
Interest in Career Preparation				
Attitudes Toward Work	28.9 (73)	5.2	31.0 (67)	4.8
Knowledge of Work Values	39.4 (74)	3.5	40.4 (52)	4.0
Decision Making				
Job Seeking/ Job Getting	49.4 (69)	6.1	48.5 (14)	6.6
Career Awareness	20.6 (75)	2.3	20.9 (72)	1.9
Economic Awareness	8.6 (78)	1.9	9.2 (69)	1.6
Academic Perceptions	52.1 (71)	9.9	53.3 (71)	9.1
Social/Personal Perceptions	49.3 (71)	8.8	46.9 (71)	10.8
Reading Achievement	49.7 (80)	11.0	49.1 (80)	13.0
Math Achievement	48.4 (80)	10.0	49.0 (80)	11.1

Grade 5: Middlesex

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					3(.39),17(.32),18(.30),19(.26),7(-.25)
Work values					4(.25),13(.20),17(.20),5(.19),3(.19)
Interest in career preparation					
Attitudes towards work					10(-.61),7(-.43),20(-.43),8(-.32),9(-.32)
Knowledge of work values					10(-.56),20(-.52),7(-.49),1(-.47),13(-.46)
Decision making					
Job seeking/job getting					9(-.85),12(-.57),15(.56),2(-.55),4(.55)
Career awareness					13(-.32),20(-.30),10(-.28),15(-.28),14(-23
Economic awareness					16(-.82),2(-.80),19(-.62),9(-.61),10(-.58)
Academic perceptions					3(.37),15(-.24),5(-.22),18(-.21),7(-.19)
Social/personal perceptions					3(.38),1(.37),7(.36),6(.32),13(.32)
Reading achievement					13(.26),4(-.21),2(.15),1(-14),11(-.11)
Math achievement					4(-.26),8(-.18),14(-.16),6(.15) ,3(-.15)
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 5: Career City

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	19.1 (271)	4.2	20.9 (149)	4.3
Work Values	36.4 (276)	3.0	37.0 (268)	3.2
Interest in Career Preparation				
Attitudes Toward Work	31.8 (269)	4.0	34.1 (170)	3.5
Knowledge of Work Values	41.3 (267)	3.0	42.7 (171)	2.6
Decision Making				
Job Seeking/ Job Getting	52.5 (260)	5.3	52.3 (36)	7.0
Career Awareness	21.5 (270)	1.6	21.9 (259)	1.5
Economic Awareness	9.1 (268)	1.6	9.7 (216)	1.6
Academic Perceptions	55.1 (265)	8.6	55.5 (265)	8.3
Social/Personal Perceptions	49.4 (265)	8.1	50.1 (265)	8.3
Reading Achievement	51.3 (336)	14.5	53.5 (336)	13.8
Math Achievement	49.7 (336)	14.0	52.2 (336)	13.1

Grade 5: Career City

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	.753 (20, 81)	.120	.137	.111	5(.18),11(.12),16(.11),15(-.10),12(-.09)
Work values	.941 (20, 184)	.082	.088	.048	17(.16),16(.15),13(.13),2(.12),3(.11)
Interest in career preparation					
Atittudes towards work	.846 (20,95)	.103	.121	.168	16(.18),19(.16),10(.14),5(.14),2(-.13)
Knowledge of work values	2.474 (20, 98)	.208	.275	.135	16(.30),15(-.23),1(.14),17(.13),14(-.13)
Decision making					
Job seeking/job getting					3(.42),1(.25),16(.25),15(-.24),12(.23)
Career awareness	1.11 (20, 173)	.095	.103	.087	15(-.15),18(.15),16(.12),4(.11),2(-.08)
Economic awareness	2.180 (20, 138)	.187	.212	.104	16(26),18(.19),11(.18),19(.16),4(.14)
Academic perceptions	1.131 (20, 186)	.062	.090	.116	13(.16),20(-.15),10(.12),7(.10),19(.09)
Social/personal perceptions	1.547 (20, 186)	.095	.121	.122	16 (.19),17(.19),11(.19),18(.17),4(.15)
Reading achievement	3.376 (20, 240)	.193	.207	.054	2(-.30),9(.11),11(.11),13(-.10),19(-.10)
Math achievement	3.963 (20, 240)	.212	.222	.102	2(-.26),3(.17),11(.17),9(.16),14(.13)
Ohio, Part 1	1.518 (20, 159)	.079	.145	.053	
Ohio, Part 2	.517 (20, 63)	.095	.098	.293	
PECE					
New Mexico One	.975 (20, 184)	.069	.087	.072	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.340 (20, 120)	.141	.234	.100	
Affective growth discriminant	.916 (20, 111)	.097	.125	.095	

Grade 8: Black

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness	18.2 (373)	7.5	18.4 (80)	7.0	19.4 (293)	8.2	16.9 (64)	8.3
Work Values	61.0 (419)	7.4	61.0 (92)	7.6	61.5 (315)	7.4	59.6 (73)	7.1
Interest in Career Preparation	12.3 (419)	3.5	12.3 (92)	3.4	12.3 (318)	3.4	12.3 (73)	3.3
Attitudes Toward Work	11.0 (379)	2.3	10.8 (85)	2.2	11.2 (261)	2.3	11.2 (61)	2.0
Knowledge of Work Values	65.8 (353)	7.5	67.0 (79)	6.6	63.5 (141)	7.9	64.5 (35)	6.4
Decision Making	11.6 (407)	1.9	11.5 (87)	1.9	11.8 (270)	2.1	11.1 (70)	1.9
Job Seeking/ Job Getting	28.5 (345)	2.4	28.1 (80)	2.4	29.0 (212)	2.8	28.2 (58)	2.8
Career Awareness	29.1 (388)	4.2	29.5 (82)	3.7	30.5 (350)	4.3	30.5 (69)	4.5
Economic Awareness	6.8 (420)	1.5	6.9 (90)	1.3	6.7 (339)	1.4	6.8 (63)	1.3
Academic Perceptions	49.1 (262)	8.8	51.6 (53)	10.6	45.4 (262)	13.1	49.3 (53)	9.1
Social/Personal Perceptions	50.3 (262)	9.2	47.3 (53)	10.2	50.4 (262)	8.7	49.2 (53)	9.4

Grade 8: Black

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.603 (27,104)	.174	.245	.117	19(.20),17(.16),18(.13),7(-.13),16(.12)
Work values	1.198 (27,108)	.144	.175	.200	26(-.20),4(-.20),12(-.13),18(.12),24(-.11)
Interest in career preparation	2.054 (27,108)	.265	.280	.167	9(.31),10(.25),12(.25),20(.24),15(.24)
Atittudes towards work	1.600 (27,89)	.266	.277	.146	18(.31),27(.17),8(.15),21(.15),24(.14)
Knowledge of work values	1.719 (27,20)	.297	.501	.168	9(-.20),15(-.19),25(-.19),1(.19),15(-.19)
Decision making	1.320 (27, 95)	.200	.229	.139	2(-.23),18(.18),9(-.17),14(-.17),10(-.12)
Job seeking/job getting	1.607 (27,50)	.262	.305	.296	11(-.17),6(-.15),22(-.15),18(.14),8(-.14)
Career awareness	2.135 (27,118)	.193	.266	.137	20(-.20),7(-.20),27(.17),15(-.15),26(-.14)
Economic awareness	2.371 (27, 125)	.232	.277	.153	25(-.23),2(.22),26(-.19),15(-.19),22(-.18)
Academic perceptions	1.998 (27,38)	.192	.296	.144	20(.231),19(-.200),4(.161),11(.155),17(-.155
Social/personal perceptions	1.196 (27,88)	.164	.214	.157	16(.178),19(.147),17(.122),4(.106),11(.101)
Ohio, Part 1	.973 (27,187)	.077	.104	.112	
Ohio, Part 2	.906 (27,187)	.081	.097	.132	
PECE	1.595 (27,11)	.325	.495	.249	
New Mexico One	.128 (27,11)	.147	.179	.206	
New Mexico Six (1-10)	1.284 (27,93	.196	.227	.142	
New Mexico Six (11-20)	1.976 (27,108)	.260	.272	.170	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.131 (27,32)	.223	.403	.206	
Affective growth discriminant	1.202 (27,187)	.100	.135	.066	

Grade 8: White
Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness	23.8 (2390)	7.1	22.5 (204)	7.4	24.2	7.6	21.1 (107)	8.9
Work Values	65.8 (1908)	6.9	65.0 (212)	6.9	65.8 (1758)	6.8	64.4 (130)	6.7
Interest in Career Preparation	10.0 (1908)	3.5	11.2 (212)	3.4	10.4 (1766)	3.6	11.1 (130)	3.3
Attitudes Toward Work	12.9 (1928)	2.3	12.2 (216)	2.4	13.1 (1492)	2.2	12.4 (98)	2.1
Knowledge of Work Values	74.6 (2316)	6.9	72.0 (196)	7.0	71.2 (467)	8.7	70.0 (67)	7.6
Decision Making	13.3 (1860)	2.0	12.7 (202)	2.0	13.6 (1538)	2.0	12.6 (126)	2.4
Job Seeking/ Job Getting	31.7 (1715)	3.5	30.3 (185)	3.3	33.0 (1235)	3.8	31.2 (78)	3.6
Career Awareness	33.8 (2400)	4.4	33.6 (206)	3.9	35.1 (2176)	4.1	33.7 (122)	4.4
Economic Awareness	7.5 (2700)	1.4	7.2 (217)	1.4	7.5 (2331)	1.4	6.9 (129)	1.5
Academic Perceptions	49.4 (1288)	10.2	48.5 (91)	10.1	48.1 (1288)	9.4	48.1 (91)	11.1
Social/Personal Perceptions	50.9 (1288)	10.1	49.9 (91)	11.5	49.0 (1288)	10.9	49.7 (91)	10.1

Grade 8: White

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	2.801 (27,1251)	.037	.055	.023	16(.12),18(.10),17(.09),25(-.09),13(-.08)
Work values	3.577 (27,1212)	.051	.070	.033	19(.15),27(.15),18(.13),6(.12),13(.08)
Interest in career preparation	7.226 (27,1216)	.103	.135	.015	27(.24),23(.24),6(.23),22(.22),8(.21)
Atittudes towards work	3.464 (27,1018)	.068	.082	.018	25(-.13),18(.12),9(-.11),2(-.10),12(-.09)
Knowledge of work values	1.447 (27,247)	.071	.125	.050	25(-.15),4(-.13),18(.12),13(-.10),3(.09)
Decision making	3.377 (27,1052)	.054	.077	.021	25(-.15),18(.14),13(-.09),9(-.08),12(-.08)
Job seeking/job getting	2.926 (27,808)	.044	.087	.011	18(.18),3(.09),19(.08),7(-.06),25(-.06)
Career awareness	3.687 (27,1476)	.040	.059	.040	25(-.13),4(-.10),9(-.10),20(-.10),13(-.10)
Economic awareness	3.325 (27,1629)	.041	.051	.015	18(.13),3(.09),19(.08),7(-.06),25(-.06)
Academic perceptions	1.251 (27,889)	.018	.035	.022	11(-.084),18(-.081),17(-.072),6(-.069),3(-.064)
Social/personal perceptions	1.811 (27,889)	.031	.050	.020	11(.120),18(.101),17(.083),16(.073),8(.071)
Ohio, Part 1	2.193 (27,1995)	.016	.028	.012	
Ohio, Part 2	2.118 (27,1995)	.018	.027	.014	
PECE	1.069 (27,283)	.042	.084	.046	
New Mexico One	4.931 (27,1315)	.048	.067	.032	
New Mexico Six (1-10)	4.450 (27,1047)	.053	.076	.020	
New Mexico Six (11-20)	10.032 (27,1216)	.105	.139	.014	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.303 (27,731)	.024	.055	.029	
Affective growth discriminant	2.597 (27,1995)	.011	.034	.004	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Opportunity City

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	23.7 (64)	5.3		
Work Values	65.3 (69)	6.4	66.3 (70)	4.7
Interest in Career Preparation	8.8 (68)	3.2	10.0 (70)	3.3
Attitudes Toward Work	12.6 (65)	2.4		
Knowledge of Work Values	73.3 (58)	6.2	79.0 (1)	0.0
Decision Making	13.5 (65)	1.8	13.5 (67)	2.0
Job Seeking/ Job Getting	30.6 (56)	2.9		
Career Awareness	33.3 (60)	4.0		
Economic Awareness	7.3 (62)	1.3	7.5	1.4
Academic Perceptions	60.4 (12)	9.6	53.0 (12)	8.7
Social/Personal Perceptions	43.8 (12)	11.8	42.0 (12)	12.5
Reading Achievement				
Math Achievement				

Grade 8: Opportunity City

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					4(-.39),11(-.29),2(-.27),27(.18),14(-.18)
Interest in career preparation					1(.49),24(.43),27(.40),23(.31),15(.30)
Attitudes towards work					
Knowledge of work values					
Decision making					18(.39),23(.30),6(.30),12(-.27),22(.27)
Job seeking/job getting					
Career awareness					
Economic awareness					16(.35),3(.34),18(.32),24(.31),22(.30)
Academic perceptions					7(-.80),10(-.80),15(-.80),18(.67),22(-.65)
Social/personal perceptions					17(-.97),11(.97),21(-.84),23(-.80),25(-.79)
Reading achievement					
Math achievement					
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Jobland

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	21.6 (459)	8.1	23.2 (425)	7.9
Work Values	64.0 (541)	7.3	65.3 (495)	7.2
Interest in Career Preparation	10.9 (541)	3.7	11.4 (463)	3.8
Attitudes Toward Work	12.2 (480)	2.3	12.6 (418)	2.4
Knowledge of Work Values	71.3 (422)	8.0	69.0 (159)	8.8
Decision Making	12.6 (535)	2.1	13.0 (448	2.2
Job Seeking/ Job Getting	30.0 (438)	3.3	31.6 (341)	3.7
Career Awareness	32.2 (479)	4.5	33.7 (454)	4.3
Economic Awareness	7.2 (483)	1.5	7.3 (453)	1.5
Academic Perceptions	52.3 (122)	11.9	49.3 (122)	9.6
Social/Personal Perceptions	50.0 (122)	11.2	49.1 (122)	10.6
Reading Achievement	34.3 (508)	11.3	33.1 (508)	10.8
Math Achievement	34.7 (508)	11.4	33.4 (508)	10.8

Grade 8: Jobland

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.230 (27,178)	.081	.133	.096	16(.16),9(-.14),25(-.14),17(.12),8(-.10)
Work values	2.300 (27, 215)	.143	.192	.106	27(.23),24(.22),23(.22),3(.22),22(.21)
Interest in career preparation	2.330 (27,218)	.163	.206	.063	23(.27),6(.24),12(.23),8(.22),9(.21)
Attitudes towards work	1.980 (27,182)	.150	.199	.091	16(.20),1(.19),6(.18),5(.17),18(.17)
Knowledge of work values	1.190 (27, 18)	.155	.483	.079	27(-.29),4(-.28),22(-.21),9(-.20),11(.17)
Decision making	1.700 (27, 206)	.108	.168	.050	25(-.25),9(-.21),10(-.20),22(-.19),24(-.11)
Job seeking/job getting	1.130 (27, 127)	.092	.179	.041	17(.25),18(.21),16(.19),3(.14),2(.10)
Career awareness	2.250 (27, 190)	.101	.212	.060	13(-.20),15(-.14),17(.13),11(-.13),23(-.12)
Economic awareness	1.180 (27,196)	.099	.127	.070	8(.17),3(.13),14(.11),12(.09),11(-.09)
Academic perceptions	1,262 (27, 20)	.167	.356	.204	1(.43),14(.20),5(.19),3(.19),22(.18)
Social/personal perceptions	1.697 (27, 20)	.268	.432	.236	25(-.31),1(-.28),8(.22),16(.17),15(.13)
Reading achievement	.993 (27, 229)	.022	.082	.058	8(.12),3(.11),17(.10),14(.09),18(.08)
Math achievement	.993 (27, 229)	.013	.090	.021	16(.14),7(-.12),2(-.09),17(.08),11(.08)
Ohio, Part 1	0.844 (27,254)	.071	.075	.090	
Ohio, Part 2	0.741 (27,254)	.064	.065	.112	
PECE	2.109 (27,17)	.171	.506	.116	
New Mexico One	2.155 (27,230)	.124	.174	.097	
New Mexico Six (1-10)	1.495 (27,206)	.094	.151	.050	
New Mexico Six (11-20)	2.463 (27,218)	.170	.213	.070	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	.939 (27,107)	.058	.157	.067	
Affective growth discriminant	1.774 (27,254)	.139	.144	.091	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Workville

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness				
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values				
Decision Making				
Job Seeking/ Job Getting				
Career Awareness				
Economic Awareness	7.8 (261)	1.4	7.8 (252)	1.4
Academic Perceptions	49.3 (59)	10.5	48.7	9.1
Social/Personal Perceptions	50.1 (59)	10.2	46.7 (59)	11.6
Reading Achievement	52.6 (260)	11.2	48.6 (260)	13.0
Math Achievement	54.8 (260)	9.3	53.6 (260)	11.8

Grade 8: Workville

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					
Interest in career preparation					
Attitudes towards work					
Knowledge of work values					
Decision making					
Job seeking/job getting					
Career awareness					
Economic awareness	.870 (27, 125)	.118	.139	.106	4(-.13),22(-.12),23(-.12),17(-.12),11(-.10)
Academic perceptions					9(-.26),8(-.22),20(-.22),3(.21),23(-.21)
Social/personal perceptions					24(-.40),23(.33),8(.33),14(.30), 7(.23)
Reading achievement	.962 (27, 128)	.086	.126	.176	20 (.14),5(.13),14(.12),7(.11),3(.11)
Math achievement	.875 (27, 128)	.053	.126	.080	13(-.20),2(-.18),3(-.16),7(-.15),26(-.14)
Ohio, Part 1	0.839 (27,132)	.120	.120	.181	
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Fallstaff

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	24.5 (517)	5.7	25.1 (495)	6.1
Work Values	66.5 (426)	6.1	65.2 (408)	6.6
Interest in Career Preparation	9.5 (426)	3.1	9.7 (408)	3.4
Attitudes Toward Work	12.8 (524)	2.3	13.1 (514)	2.0
Knowledge of Work Values	75.9 (501)	5.2	73.6 (66)	6.7
Decision Making	13.5 (410)	1.8	13.6 (400)	1.9
Job Seeking/ Job Getting	32.1 (394)	3.3	33.3 (354)	3.4
Career Awareness	35.0 (514)	3.3	35.9 (503)	3.3
Economic Awareness	7.6 (524)	1.3	7.6 (515)	1.3
Academic Perceptions	48.5 (459)	9.6	47.5 (459)	9.8
Social/Personal Perceptions	52.2 (459)	9.4	49.7 (459)	10.5
Reading Achievement	34.8 (547)	11.0	50.2 (547)	11.2
Math Achievement	3.14 (547)	6.6	49.5 (547)	11.5

Grade 8: Fallstaff

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.827 (27,299)	.083	.129	.035	19(.16),27(.16),18(.16),3(.11),16(.11)
Work values	1.742 (27, 233)	.110	.146	.100	6(.20),27(.17),18(.17),1(.14),22(.13)
Interest in career preparation	3.191 (27,234)	.197	.249	.058	9(.31),20(.29),27(.28),6(.27),8(.24)
Attitudes towards work	1.954 (27, 309)	.113	.137	.047	18(.19),11(.14),10(-.14),3(.14),19(.10)
Knowledge of work values					18(.39),13(-.35),27(.30),4(-.29),2(.25)
Decision making	2.333 (27, 225)	.152	.197	.077	18(.20),13(-.17),10(-.12),1(.11),4(-.09)
Job seeking/job getting	1.520 (27, 192)	.087	.160	.049	18(.23),13(-.17),23(-.15),22(-.14),15(-.14)
Career awareness	1.240 (27, 290)	.059	.096	.042	13(-.20),15(-.19),18(.19),25(-.15),6(.13)
Economic awareness	2.526 (27, 315)	.144	.167	.054	3(.19),19(.18),14(.17),17(.15),24(.15)
Academic perceptions	1.616 (27, 287)	.052	.114	.064	10(-.12),10(-.12),15(-.11),18(-.10),13(.09)
Social/personal perceptions	.780 (27, 287)	.038	.062	.055	13(-.11),15(.09),9(-.08),11(.06),17(.06)
Reading achievement	2.232 (27, 320)	.129	.138	.121	25(-.16),23(-.16),13(-.14),4(-.12),15(-.11)
Math achievement	1.677	.106	.115	.069	18(.13),23(-.13),25(-.11),2(-.10),9(-.09)
Ohio, Part 1	1.350 (27,315)	.081	.092	.095	
Ohio, Part 2	1.250 (27,315)	.087	.089	.082	
PECE					
New Mexico One	1.975 (27,310)	.096	.134	.066	
New Mexico Six (1-10)	4.086 (27,213)	.147	.260	.105	
New Mexico Six (11-20)	3.155 (27,223)	.200	.256	.057	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.429 (27,167)	.088	.166	.060	
Affective growth discriminant	1.475 (27,315)	.089	.104	.064	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Vocation Beach

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	20.6 (72)	7.3	14.0 (17)	9.3
Work Values	59.9 (96)	7.4	60.4 (96)	7.7
Interest in Career Preparation	12.8 (96)	3.4	12.5 (96)	3.5
Attitudes Toward Work	10.8 (88)	2.3	11.3 (40)	2.4
Knowledge of Work Values	66.9 (62)	8.4	60.4 (8)	11.8
Decision Making	11.2 (88)	1.9	11.2 (37)	1.9
Job Seeking/ Job Getting	28.7 (73)	2.8	33.3 (354)	3.4
Career Awareness	29.2 (78)	5.0	30.4 (69)	4.9
Economic Awareness	6.6 (80)	1.4	6.2 (43)	1.2
Academic Perceptions	48.8 (74)	10.4	47.8 (74)	9.6
Social/Personal Perceptions	47.5 (74)	10.6	47.8 (74)	10.7
Reading Achievement	40.2 (146)	11.9	39.7 (146)	10.6
Math Achievement	38.0 (146)	9.7	39.9 (146)	10.4

Grade 8: Vocation Beach

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					25(-1.00),17(-1.00),23(.98),21(.96),16(-.90)
Work values					3(.34),2(-.32),25(-.29),27(.27),21(.19)
Interest in career preparation					19(.64),8(.47),23(.46),12(.44),22(.41)
Attitudes towards work					14(-.66),11(-.54),2(-.49),13(-.49),8(.48)
Knowledge of work values					
Decision making					
Job seeking/job getting					1(.50),16(.46),11(-.45),17(.44),23(.40)
Career awareness					7(-.78),9(-.64),25(-.64),2(-.60),20(-.59)
Economic awareness					
Academic perceptions					16(-.45),25(.41),6(-.36),11(-.35),21(.31)
Social/personal perceptions					1(-.44),6(.43),16(.42),17(.36),3(-.29)
Reading achievement					14(-.47),24(.41),21(-.41),20(-.34),1(-.34)
Math achievement					24(.37),17(.35),14(-.35),20(-.29),5(.29)
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Unique Domain

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	17.8 (104)	8.0	16.5 (63)	7.6	18.3 (101)	8.8	15.7 (60)	8.4
Work Values	62.9 (125)	6.0	62.3 (47)	6.5	63.5 (88)	7.0	59.6 (46)	6.4
Interest in Career Preparation	11.4 (125)	3.7	11.4 (47)	3.7	11.4 (88)	3.4	11.7 (46)	3.2
Attitudes Toward Work	11.3 (108)	2.6	11.1 (66)	2.0	11.2 (85)	2.3	11.5 (63)	1.7
Knowledge of Work Values	67.9 (100)	6.2	67.9 (63)	5.2	66.7 (60)	7.0	64.4 (25)	5.8
Decision Making	12.0 (124)	1.8	11.8 (47)	1.6	12.2	2.0	10.8 (44)	2.0
Job Seeking/ Job Getting	28.7 (103)	2.5	28.4 (44)	2.4	29.5 (77)	2.9	29.1 (44)	2.8
Career Awareness	28.5 (102)	4.6	30.8 (63)	3.4	30.3 (106)	4.9	31.0 (59)	3.5
Economic Awareness	7.3 (118)	1.5	6.7 (66)	1.3	6.9 (102)	1.4	6.5 (64)	1.3
Academic Perceptions	49.9 (107)	8.7	45.5 (41)	9.8	42.7 (107)	7.6	45.2 (41)	9.8
Social/Personal Perceptions	50.9 (107)	8.6	50.5 (41)	10.7	52.4 (107)	7.0	52.8 (41)	10.0
Reading Achievement	42.6 (132)	8.3	44.8 (105)	7.7	45.3 (132)	6.0	47.0 (105)	4.9
Math Achievement	43.8 (132)	9.0	45.1 (105)	8.0	47.8 (132)	3.8	48.2 (105)	4.0

Grade 8: Unique Domain

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	.664 (27,4)	.269	.432	.293	25(.40),13(.38),10(.32),12(.24),23(.23)
Work values					20(.31),23(.31),6(.24),16(-.22),7(.21)
Interest in career preparation					11(-.28),5(-.25),18(-.18),7(.15),16(-.14)
Atittudes towards work					20(.26),12(-.20),11(-.17),8(-.17),13(.16)
Knowledge of work values					7(-.31),21(-.31),15(-.28),3(-.25),10(-.23)
Decision making					18(.36),6(.23),7(.22),27(.20),19(.16)
Job seeking/job getting					14(.35), 21(-.31),11(-.30),22(-.24),19(.22)
Career awareness	3.010 (27, 4)	.426	.495	.414	14(.32),11(-.22),27(.21),25(.17),10(.17)
Economic awareness	1.914 (27, 7)	.561	.562	.362	17(-.42),1(-.37),22(-.25),16(-.20),6(.20)
Academic perceptions	1.779 (27, 10)	.413	.593	.197	26(.38),13(.37),20(.35),10(.35),11(.28)
Social/personal perceptions	1.503 (27, 10)	.353	.464	.321	10(-.31),26(-.29),8(-.27),7(-.27),17(-.26)
Reading achievement	6.170 (27, 19)	.377	.500	.334	10(-.34),18(.33),15(-.28),20(-.24),25(-.19)
Math achievement	1.543 (27, 19)	.329	.380	.387	20(-.39),25(-.27),18(.26),9(-.26),15(-.22)
Ohio, Part 1	.781 (27, 17)	.098	.338	.113	
Ohio, Part 2	1.975 (27, 17)	.138	.451	.124	
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant	3.749 (27,17)	.387	.592	.202	

Target Students' Learner Outcome
Pre- and Posttest Scores

Grade 8: Mt. Exploration

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	21.4 (289)	8.4	22.2 (274)	8.3
Work Values	62.7 (314)	8.6	63.4 (296)	7.8
Interest in Career Preparation	11.9 (314)	3.3	12.0 (296)	3.5
Attitudes Toward Work	12.4 (301)	2.5	12.5 (291)	2.3
Knowledge of Work Values	69.9 (285)	8.9	63.2 (60)	10.2
Decision Making	12.1 (304)	2.3	12.7 (291)	2.3
Job Seeking/ Job Getting	30.6 (287)	3.6	31.7 (237)	3.9
Career Awareness	32.5 (290)	4.6	33.4 (389)	4.6
Economic Awareness	6.8 (309)	1.4	7.0 (279)	1.5
Academic Perceptions	51.1 (223)	10.0	49.7 (223)	9.6
Social/Personal Perceptions	47.9 (223)	10.3	47.0 (223)	11.5
Reading Achievement				
Math Achievement				

Grade 8: Mt. Exploration

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.940 (27, 137)	.132	.236	.081	16(.20),18(.19),17(.16),4(-.15),19(.14)
Work values	1.350 (27, 161)	.102	.158	.094	18(.16),13(-.15),20(-.11),7(-.10),17(.08)
Interest in career preparation	2.140 (27, 161)	.173	.221	.128	19(.29),27(.27),13(.26),23(.26),25(.25)
Atittudes towards work	1.730 (27, 155)	.172	.202	.110	2(-.26),18(.17),10(-.14),9(-.14),27(-.13)
Knowledge of work values					25(-.38),13(-.27),17(.23),19(.22),5(-.24)
Decision making	2.060 (27, 153)	.134	.219	.108	18(.23),2(-.16),27(-.15),7(-.14),1(-.13)
Job seeking/job getting	1.660 (27,112)	.124	.245	.072	18(.21),2(-.18),23(.14),17(.13),15(-.12)
Career awareness	1.990 (27, 144)	.101	.250	.033	14(-.18),13(-.15),26(-.15),12(-.13),9(-.13)
Economic awareness	2.430 (27, 150)	.184	.261	.102	25(-.29),20(-.27),26(-.22),7(-.21),4(-.21)
Academic perceptions	2.032 (27, 108)	.190	.293	.085	7(.17),26(.15),18(-.13),17(-.13),4(.12)
Social/personal perceptions	1.769 (27, 108)	.24	.271	.090	11(.21),2(-.17),8(.16),17(.16),18(.14)
Reading achievement					
Math achievement					
Ohio, Part 1	0.699 (27,171)	.064	.087	.094	
Ohio, Part 2	0.797 (27,171)	.096	.098	.121	
PECE					
New Mexico One	1.276 (27,164)	.103	.153	.079	
New Mexico Six (1-10)	2.153 (27,153)	.142	.229	.103	
New Mexico Six (11-20)	2.051 (27,161)	.175	.216	.129	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	2.439 (27,96)	.116	.361	.136	
Affective growth discriminant	0.781 (27,171)	.098	.102	.066	

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Prepton

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	22.0 (344)	8.0	22.0 (123)	7.3	21.2 (297)	9.2	20.6 (100)	8.7
Work Values	64.3 (380)	7.8	64.5 (134)	7.4	64.6 (316)	7.4	62.5 (119)	7.7
Interest in Career Preparation	10.6 (380)	3.6	11.6 (134)	3.5	10.8 (325)	3.7	11.8 (119)	3.6
Attitudes Toward Work	12.4 (358	2.3	11.7 (126)	2.4	12.5 (306)	2.5	12.2 (109)	2.3
Knowledge of Work Values	71.1 (333)	8.6	70.4 (114)	7.7	66.4 (93)	9.4	69.3 (86)	7.8
Decision Making	12.7 (376)	2.2	12.2 (129)	2.1	13.1 (318)	2.3	11.9 (116)	5.7
Job Seeking/ Job Getting	30.5 (329)	3.3	29.6 (118)	3.3	31.4 (257)	3.8	30.3 (99)	3.8
Career Awareness	31.9 (353)	4.8	32.0 (122)	4.8	32.3 (317)	5.1	32.4 (108)	5.0
Economic Awareness	7.1 (361)	1.4	7.2 (127)	1.4	7.1 (320)	1.5	6.9 (109)	1.4
Academic Perceptions	48.7 (193)	10.6	48.1 (113)	9.7	47.6 (193)	9.0	49.4 (113)	10.2
Social/Personal Perceptions	52.0 (193)	10.3	47.9 (113)	11.2	50.5 (193)	11.0	48.1 (113)	9.7
Reading Achievement								
Math Achievement								

Grade 8: Prepton

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.763 (27,142)	.179	.229	.067	16(.20),17(.17),6(.16),22(.14),19(.14)
Work values	1.867 (27, 165)	.154	.209	.080	19(.23),26(-.18),25(-.16),1(-.14),16(.13)
Interest in career preparation	1.309 (27, 171)	.125	.153	.085	27(.23),20(.19),21(.19),19(.18),22(.18)
Attitudes towards work	1.099 (27, 151)	.101	.146	.076	25(-.16),23(-.15),1(-.13),13(-.11),18(-10)
Knowledge of work values					20(-.25),2(-.22),25(-.19),8(.19),10(-.18)
Decision making	1.617 (27,165)	.127	.183	.087	13(-.25),12(-.21),9(-.20),2(-.20),21(-.20)
Job seeking/job getting	1.380 (27, 113)	.124	.219	.065	9(-.28),13(-.27),26(-.22),19(.20),16(.19)
Career awareness	2.280 (27, 155)	.205	.236	.148	26(-.25),13(-.24),10(-.24),25(-.23),20(-.23)
Economic awareness	1.029 (27, 161)	.102	.130	.094	15(-.20),9(-.17),2(-.16),26(-.16),10(-.16)
Academic perceptions	.919 (27, 87)	.087	.171	.116	23(-.22),10(-.21),19(-.20),6(-.20),18(-.20)
Social/personal perceptions	1.810 (27, 87)	.159	.309	.032	2(-.18),17(.17),18(.17),16(.16),23(.14)
Reading achievement					
Math achievement					
Ohio, Part 1	2.486 (27,187)	.206	.217	.171	
Ohio, Part 2	2.474 (27,187)	.180	.196	.235	
PECE					
New Mexico One	2.177 (27,176)	.163	.221	.088	
New Mexico Six (1-10)	1.843 (27,161)	.140	.210	.075	
New Mexico Six (11-20)	1.328 (27,166)	.127	.156	.100	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.481 (27,99)	.137	.252	.068	
Affective growth discriminant	2.452 (27,187)	.211	.227	.124	

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Studytown

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	22.6 (212)	7.1	22.4 (188)	7.0	22.3 (46)	8.0	24.0 (34)	7.4
Work Values	65.7 (251)	6.6	63.4 (229)	7.2	66.0 (80)	6.6	64.4 (76)	5.8
Interest in Career Preparation	10.5 (251)	3.6	11.6 (229)	3.5	10.2 (80)	4.4	11.1 (76)	3.1
Attitudes Toward Work	12.3 (238)	2.3	11.9 (212)	2.4				
Knowledge of Work Values	72.8 (219)	7.0	72.4 (186)	6.8				
Decision Making	13.4 (242)	1.8	12.4 (212)	2.2	14.1 (76)	1.5	13.2 (72)	2.2
Job Seeking/ Job Getting	30.6 (222)	3.0	29.9 (192)	2.8				
Career Awareness	32.2 (222)	5.1	32.9 (197)	4.2	33.6 (56)	4.2	34.9 (58)	4.1
Economic Awareness	7.0 (235)	1.4	7.3 (217)	1.4	7.3 (71)	1.5	7.0 (148)	1.6
Academic Perceptions	43.8 (4)	7.7			44.2 (4)	13.6		
Social/Personal Perceptions	55.4 (4)	3.9			56.4 (4)	3.1		
Reading Achievement	41.4 (382)	11.5	40.7 (231)	10.6	48.2 (382)	11.3	45.4 (231)	12.5
Math Achievement	35.4 (382)	11.4	31.6 (231)	9.1	45.2 (382)	12.8	44.2 (231)	12.5

Grade 8: Studytown

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					14(-.26),8(-.25),6(.23),16(.22),4(-.19)
Work values					1(.41),22(.35),23(.34),5(.34),12(.31)
Interest in career preparation					8(.60),27(.53),12(.51),6(.50),3(.48)
Acittudes towards work					
Knowledge of work values					
Decision making					22(.23),19(.22),16(-.22),7(-.15),9(.15)
Job seeking/job getting					
Career awareness					23(.34),22(.30),19(.29),10(.29),26(.29)
Economic awareness					26(.62),13(-.54),5(.51),15(-.46),23(-.39)
Academic perceptions					
Social/personal perceptions					
Reading achievement	1.291 (27, 117)	.182	.194	.146	2(-.20),25(-.19),7(-.16),16(.13),4(-.12)
Math achievement	1.257 (27, 117)	.179	.188	.154	16(.16),2(-.15),25(-.14),17(.11),13(-.11)
Ohio, Part 1	1.332 (27,66)	.285	.287	.186	
Ohio, Part 2	1.168 (27,66)	.249	.249	.229	
PECE					
New Mexico One	1.296 (27,11)	.458	.578	.210	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant	0.751 (27,66)	.173	.180	.224	

Target Students' Learner Outcome
Pre- and Posttest Scores

Grade 8: Cognitive Camp

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	21.5 (240)	7.2	21.6 (226)	8.8
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values	70.2 (232)	8.0	71.6 (195)	9.0
Decision Making				
Job Seeking/ Job Getting				
Career Awareness	32.0 (229)	4.1	32.5 (237)	4.7
Economic Awareness	7.1 (146)	1.5	7.0 (244)	1.4
Academic Perceptions	47.3 (230)	8.2	46.2 (230)	7.1
Social/Personal Perceptions	51.1 (230)	9.1	48.9 (230)	9.8
Reading Achievement	47.0 (254)	9.0		
Math Achievement	45.4 (254)	8.0		

Grade 8: Cognitive Camp

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	.888 (27, 81)	.123	.891	.200	18(.22),14(.18),23(.18),25(-.17),27(.17)
Work values					
Interest in career preparation					
Attitudes towards work					
Knowledge of work values	1.520 (27, 78)	.172	.312	.141	18(.28),14(.21),15(-.21),21(.18),9(-.17)
Decision making					
Job seeking/job getting					
Career awareness	.971 (27, 78)	.120	.206	.105	25(-.30),15(-.25),18(.22),13(-.20),9(-.19)
Economic awareness	1.140 (27, 93)	.152	.214	.099	18(.22),8(-.15),14(.12),9(-.12),23(.12)
Academic perceptions	.981 (27, 97)	.104	.184	.079	15(-.20),2(-.17),1(-.14),11(-.12),23(-.12)
Social/personal perceptions	1.178 (27, 97)	.118	.190	.143	23(.21),25(.19),11(.18),4(.17),26(.17)
Reading achievement					
Math achievement					
Ohio, Part 1	2.105 (27,98)	.243	.297	.156	
Ohio, Part 2	1.090 (27,98)	.194	.196	.147	
PECE	1.333 (27, 52)	.157	.298	.142	
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant	.870 (27,98)	.146	.154	.196	

Target Students' Learner Outcome
Pre- and Posttest Scores

Grade 8: Better Springs

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	23.5 (361)	7.6	25.7 (343)	6.6
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values	76.0 (361)	6.1	70.5 (28)	9.0
Decision Making				
Job Seeking/ Job Getting				
Career Awareness	32.9 (375)	5.5	35.9 (378)	3.4
Economic Awareness	7.5 (385)	1.4	7.6 (362)	1.4
Academic Perceptions				
Social/Personal Perceptions				
Reading Achievement				
Math Achievement				

Grade 8: Better Springs

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

onstructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness	2.632 (27, 206)	.148	.223	.088	7(-.20),18(.18),13(-.17),2(-.17),26(-.14)
ork values					
nterest in career preparation					
ttitudes towards work					
nowledge of work values					26(.23),27(.22),1(.21),13(.20),23(.17)
ecision making					
ob seeking/job getting					
areer awareness	2.98 (27, 236)	.166	.220	.103	2(-.29),7(-.26),16(.24),18(.23),15(-.21)
conomic awareness	1.431 (27, 246)	.095	.117	.115	7(-.15),18(.13),16(.10),19(.07),9(-.07)
cademic perceptions					
ocial/personal perceptions					
eading achievement					
ath achievement					
hio, Part 1	2.811 (27,275)	.154	.183	.129	
hio, Part 2	1.044 (27,275)	.085	.085	.084	
ECE					
ew Mexico One					
ew Mexico Six (1-10)					
ew Mexico Six (11-20)					
ew Mexico Two, Seven, Eight					
ognitive growth discriminant					
ffective growth discriminant	1.222 (27,275)	.100	.087	.046	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 8: Career City

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	25.3 (434)	6.1	27.5 (113)	4.9
Work Values	67.2 (452)	6.0	66.8 (444)	6.3
Interest in Career Preparation	9.0 (452)	3.4	9.8 (444)	3.3
Attitudes Toward Work	13.5 (445)	2.12	13.8 (253)	2.0
Knowledge of Work Values	77.3 (421)	5.1	72.8 (12)	7.0
Decision Making	14.0 (445)	1.6	14.3 (252)	1.38
Job Seeking/ Job Getting	33.3 (426)	3.4	35.0 (245)	3.2
Career Awareness	35.6 (434)	3.3	37.1 (356)	2.4
Economic Awareness	7.9 (448)	1.3	8.3 (229)	1.3
Academic Perceptions	50.4 (185)	10.0	48.7 (185)	10.2
Social/Personal Perceptions	50.1 (185)	9.3	50.4 (185)	10.0
Reading Achievement			57.3 (473)	10.7
Math Achievement			54.3 (473)	10.5

Grade 8: Career City

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

onstructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
ccupational self-awareness	.458 (27, 32)	.145	.209	.175	16(.23),17(.20),19(.20),11(.16),5(.15)
ork values	1.467 (27, 251)	.083	.125	.057	17(.21),4(.18),6(.17),3(.17),16(.17)
nterest in career preparation	3.366 (27, 251)	.185	.236	.087	27(.29),8(.28),26(.26),22(.25),21(.25)
ttitudes towards work	1.124 (27, 132)	.135	.153	.160	24(-.18),23(-.15),17(.12),25(-.11),9(-.10)
nowledge of work values					3(.65),11(.57),2(-.56),20(-.56),18(.53)
ecision making	1.854 (27, 133)	.192	.216	.187	16(.24),25(-.17),17(.16),9(-.16),1(-.14)
ob seeking/job getting	1.73 (27, 122)	.134	.244	.064	18(28),25(-.20),16(.19),23(-.16),14(-.14)
areer awareness	.927 (27, 194)	.056	.097	.086	25(-.23),23(-.17),9(-.15),22(-.15),18(.15)
conomic awareness	1.214 (27, 118)	.162	.190	.107	3(.19),26(-.13),4(.11),9(.10),14(.09)
cademic perceptions	.807 (27, 63)	.101	.172	.193	16(-.23),23(-.20),18(-.20),27(-.19),3(-.18)
ocial/personal perceptions	.582 (27,63)	.088	.141	.184	3(.18),17(.18),26(.17),20(.16),27(.15)
eading achievement	1.688 (27, 266)	.142	.146	.000	9(-.16),15(-.16),18(.16),22(-.14),14(-.13)
ath achievement	1.572 (27, 266)	.134	.138	.000	15(-.20),9(-.16),22(-.14),20(-.12),26(-.11)
Ohio, Part 1	1.062 (27,256)	.068	.088	.101	
Ohio, Part 2	1.327 (27,256)	.115	.115	.059	
PECE					
New Mexico One	1.223 (27, 252)	.071	.106	.052	
New Mexico Six (1-10)	1.902 (27, 131)	.208	.233	.152	
New Mexico Six (11-20)	3.217 (27, 251	.175	.228	.086	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	1.069 (27, 111)	.069	.165	.083	
Affective growth discriminant	1.508 (27,256)	.109	.121	.074	

Grade 11: Black

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness	0.5 (332)	6.9	4.3 (12)	4.8	2.5 (261)	7.6	7.2 (12)	3.5
Work Values	64.7 (319)	6.4	65.7 (34)	6.4	63.7 (350)	6.7	66.6 (120)	4.1
Interest in Career Preparation	11.6 (319)	3.4	11.6 (34)	3.3	12.0 (353)	3.2	12.2 (20)	2.5
Attitudes Toward Work	7.3 (390)	1.7	7.7 (34)	1.7	7.4 (356)	1.6	7.0 (21)	1.5
Knowledge of Work Values	79.3 (338)	8.0	84.8 (12)	4.5	76.7 (124)	9.7	78.0 (1)	0.0
Decision Making	97.9 (210)	12.5	98.4 (20)	14.4	99.1 (175)	13.1	109.2 (11)	5.5
Job Seeking/ Job Getting	23.0 (232)	3.2	24.0 (9)	2.5	23.7 (241)	3.2	23.4 (13)	2.4
Career Awareness	24.0 (361)	3.4	25.2 (13)	2.0	24.4 (335)	3.7	26.5 (14)	2.3
Economic Awareness	4.6 (401)	1.1	4.7 (31)	1.0	4.6 (311)	1.1	4.8 (17)	1.0
Academic Perceptions	50.2 (311)	9.0	52.4 (12)	10.2	49.4 (311)	8.9	46.1 (12)	9.5
Social/Personal Perceptions	51.5 (311)	9.4	50.9 (12)	12.0	51.6 (311)	9.2	57.7 (12)	5.3

Grade 11: Black

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.695 (27,108)	.153	.223	.171	8(-.22),15(-.22),14(-.21),24(-.19),4(-.19)
Work values	.951 (27,127)	.112	.142	.120	6(.18),23(.12),16(.12),22(.12),5(.12)
Interest in career preparation	1.395 (27,131)	.159	.193	.111	8(.27),22(.26),27(.26),3(.25),23(.25)
Atittudes towards work	1.063 (27,163)	.113	.132	.100	10(-.10),23(.12),13(-.12),16(.11),18(.11)
Knowledge of work values	.869 (27,24)	.268	.367	.188	11(-.30),24(-.29),14(-.26),9(-.20),2(-.17)
Decision making	1.203 (27,27)	.213	.359	.204	14(-.35),11(-.27),19(-.20),17(-.19),20(-.1
Job seeking/job getting	1.605 (27,74)	.185	.287	.144	23(.19),10(-.18),22(.12),9(-.12),15(-.11)
Career awareness	1.318 (27, 157)	.109	.154	.119	1(-.15), 4(-.15),22(.14),7(-.12),11(-.11)
Economic awareness	.769 (27, 144)	.087	.106	.133	11(-.17),4(-.14),12(-.12),15(-.09),9(-.09)
Academic perceptions	.725 (27,144)	.063	.100	.104	22(-.132),16(-.122),15(-.107),2(-.103),/ 17(-.089)
Social/personal perceptions	.880 (27,144)	.064	.110	.129	22(.138),27(.120),1(.117),8(.112),2(.106)
Ohio, Part 1	1.972 (27,128)	.178	.242	.130	
Ohio, Part 2	1.564 (27,102)	.185	.202	.285	
PECE					
New Mexico One	1.444 (27, 168)	.127	.156	.138	
New Mexico Six (1-10)	1.841 (27, 113)	.192	.263	.102	
New Mexico Six (11-20)	1.591 (27, 131)	.177	.209	.130	
New Mexico Two, Seven, Eight	1.339 (27, 30)	.246	.350	.253	
Cognitive growth discriminant	.988 (27,66)	.174	.204	.247	
Affective growth discriminant	1.381 (27, 111)	.171	.215	.116	

Grade 11: White

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	4.6 (1322)	5.0	4.9 (142)	5.6	6.0 (1031)	5.6	6.7 (144)	5.3
Work Values	67.1 (1298)	5.7	65.1 (86)	6.0	65.6 (1185)	6.6	68.4 (40)	6.1
Interest in Career Preparation	10.8 (1298)	3.7	10.8 (86)	3.6	11.8 (1188)	3.7	11.8 (40)	3.6
Attitudes Toward Work	8.3 (1340)	1.5	8,0 (86)	1.3	8.3 (1215)	1.5	8.1 (43)	1.3
Knowledge of Work Values	86.4 (1317)	5.1	87.7 (148)	4.5	84.3 (397)	7.2	86.7 (29)	3.3
Decision Making	106.4 (1057)	11.1	104.6 (68)	12.6	105.7 (675)	12.9	111.3 (15)	5.9
Job Seeking/ Job Getting	26.6 (1054)	3.4	24.7 (16)	3.1	26.9 (828)	3.4	25.2 (17)	3.4
Career Awareness	26.6 (1366)	3.3	27.7 (148)	2.5	26.0 (1221)	4.4	28.1 (149)	2.1
Economic Awareness	4.9 (1667)	0.9	4.9 (222)	0.9	4.8 (1426)	1.0	4.9 (157)	0.9
Academic Perceptions	48.7 (839)	9.7	52.6 (10)	9.4	47.9 (839)	9.6	47.4 (10)	6.3
Social/Personal Perceptions	51.3 (839)	9.2	50.3 (10)	8.8	50.6 (839)	9.8	46.7 (10)	12.7

Grade 11: White

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	2.720 (27,880)	.051	.073	.039	16(.14),18(.13),9(-.12),3(.12),19(.11)
Work values	2.871 (27,955)	.056	.071	.043	16(.17),18(.17),19(.17),27(.16),17(.15)
Interest in career preparation	3.717 (27,959	.072	.092	.023	23(.22),27(.18),22(.18),3(.19),3(.16)
Atittudes towards work	2.183 (27,1007)	.048	.054	.024	18(.15),16(.14),3(.10),19(.10),6(.10)
Knowledge of work values	2.053 (27,270)	.100	.143	.114	19(.14),16(.13),4(-.12),9(-.12),2(-.12)
Decision making	1.139 (27,524)	.030	.053	.024	21(11),18(.10),19(.10),6(.10),5(.10)
Job seeking/job getting	1.777 (27,629)	.037	.068	.022	9(-.12),10(-.11),15(-.11),26(-.10),1(-.09)
Career awareness	1.367 (27,1032)	.077	.096	.055	16(.16),18(.15),17(.13),9(-.12),1(-.10)
Economic awareness	1.699 (27,1210	.032	.036	.018	18(.09),16(.09),7(-.08),27(.06),19(.06)
Academic perceptions	1.360 (27,612)	.032	.052	.049	16(-.110),18(.097),21(-.084),3(-.077), 17(-.072)
Social/personal perceptions	1.836 (27,612)	.051	.072	.034	18(.154),17(.135),16(.130),27(.112),19(.11
Ohio, Part 1	1.285 (27,807)	.033	.039	.042	
Ohio, Part 2	1.854 (27,705)	.054	.064	.030	
PECE	1.664 (27,167)	.111	.176	.107	
New Mexico One	2.4000 (27,864)	.051	.066	.045	
New Mexico Six (1-10)	2.122 (27,744)	.058	.069	.032	
New Mexico Six (11-20)	3.773 (27,815)	.082	.107	.028	
New Mexico Two, Seven, Eight	1.356 (27,452)	.039	.070	.035	
Cognitive growth discriminant	2.392 (27,525)	.079	.103	.048	
Affective growth discriminant	3.056 (27,682)	.082	.103	.037	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Opportunity City

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	4.6 (63)	5.0		
Work Values	66.9 (72)	6.8	68.1 (55)	6.7
Interest in Career Preparation	11.6 (72)	3.9	12.0 (56)	4.0
Attitudes Toward Work	8.6 (72)	1.6	8.5 (70)	1.8
Knowledge of Work Values	85.3 (60)	4.6		
Decision Making	104.4 (50)	10.6		
Job Seeking/ Job Getting	26.1 (57)	3.9		
Career Awareness	27.0 (63)	2.3		
Economic Awareness	4.6 (67)	1.0	4.7 (62)	1.0
Academic Perceptions	49.3 (27)	8.5	46.8 (27)	6.1
Social/Personal Perceptions	48.4 (27)	12.1	50.5 (27)	8.5
Reading Achievement				
Math Achievement				

Grade 11: Opportunity City

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					19(.29),13(.29),21(.20),17(.18),8(.16)
Interest in career preparation					12(.43),21(.30),4(.27),3(.26),2(.26)
Atittudes towards work					19(.23),13(-.20),23(.18),6(.16),22(-.14)
Knowledge of work values					
Decision making					
Job seeking/job getting					
Career awareness					
Economic awareness					5(.37),15(.33),12(.28),20(.27),14(.27)
Academic perceptions					20(-.50),11(-.47),17(-.46),27(-.44),14(-.44)
Social/personal perceptions					12(.65),1(.59),20(.53),14(.49),10(.49)
Reading achievement					
Math achievement					
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome
Pre- and Posttest Scores
Grade 11: Jobland

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	4.2 (368)	5.7	5.6 (335)	6.3
Work Values	66.1 (411)	6.3	66.8 (356)	6.9
Interest in Career Preparation	11.4 (411)	3.7	11.9 (359)	3.9
Attitudes Toward Work	8.2 (421)	1.6	8.4 (368)	1.7
Knowledge of Work Values	84.7 (364)	6.1	84.0 (209)	6.5
Decision Making	105.8 (236)	11.1	106.9 (221)	10.5
Job Seeking/ Job Getting	24.8 (277)	3.6	26.0 (259)	3.8
Career Awareness	26.5 (390)	2.8	27.0 (351)	2.9
Economic Awareness	4.8 (398)	1.0	4.8 (325)	1.0
Academic Perceptions	49.1 (124)	9.9	48.7 (124)	10.1
Social/Personal Perceptions	52.2 (124)	9.5	50.6 (124)	10.5
Reading Achievement				
Math Achievement				

Grade 11: Jobland

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.410 (27, 150)	.099	.166	.105	20(-.19),6(.16),3(.14),19(.11),18(.11)
Work values	1.690 (27, 185)	.110	.159	.135	23(.26),22(.20),18(.16),1(.16),24(.16)
Interest in career preparation	3.050 (27, 187)	.199	.270	.086	22(.34),27(.31),23(.31),5(.31),6(.28)
Attitudes towards work	1.980 (27, 199)	.159	.197	.054	18(.18),25(.17),16(.16),22(.16),3(.13)
Knowledge of work values	2.290 (27, 75)	.181	.343	.127	9(-.21),13(-.17),20(-.16),12(-.16),6(.14)
Decision making	.896 (27, 62)	.085	.172	.192	15(-.19),21(.18),18(.13),17(-.13),9(-.10)
Job seeking/job getting	1.200 (27, 69)	.087	.233	.102	9(-.22),8(-.21),25(-.21),4(-.18),13(-.17)
Career awareness	1.770 (27, 171)	.082	.181	.079	8(-.26),13(-.23),1(-.21),15(-.20),9(-.20)
Economic awareness	1.280 (27, 164)	.137	.160	.071	18(.18),10(.15),2(.14),9(-.13),14(.10)
Academic perceptions	.779 (27, 37)	.150	.270	.141	12(-.25),25(-.22),19(-.21),14(-.20),2(-.20)
Social/personal perceptions	1.496 (27, 37)	.226	.321	.271	12(.32),18(.30),14(.28),17(.23),2(.22)
Reading achievement					
Math achievement					
Ohio, Part 1	1.535 (27,160)	.075	.175	.064	
Ohio, Part 2	.784 (27,149)	.096	.109	.107	
ECE	2.[illegible] (27,71)	.161	.363	.114	
New Mexico One	1.813 (27,199)	.112	.165	.110	
New Mexico Six (1-10)	.902 (27,179)	.083	.109	.068	
New Mexico Six (11-20)	3.047 (27,187)	.190	.265	.095	
New Mexico Two, Seven, Eight	1.002 (27,69)	.096	.194	.153	
Cognitive growth discriminant	5.677 (27,67)	.184	.363	.102	
Affective growth discriminant	3.396 (27,157)	.261	.335	.070	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Workville

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness				
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values				
Decision Making				
Job Seeking/ Job Getting				
Career Awareness				
Economic Awareness	4.9 (207)	0.9	5.0 (198)	0.9
Academic Perceptions	50.1 (58)	10.2	48.2 (58)	10.2
Social/Personal Perceptions	49.0 (58)	9.6	50.9 (58)	10.2
Reading Achievement				
Math Achievement				

Grade 11: Workville

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					
Interest in career preparation					
Atittudes towards work					
Knowledge of work values					
Decision making					
Job seeking/job getting					
Career awareness					
Economic awareness	1.100 (27, 99)	.187	.202	.112	15(-.16),23(.14),8(-.11),13(-.10),1(.10)
Academic perceptions					1(.28),12(.23),5(.21),4(.20),19(.17)
Social/personal perceptions					18(.32),27(.31),23(.29),1(-.29),4(-.25)
Reading achievement					
Math achievement					
Ohio, Part 1					
Ohio, Part 2					
ICE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Awaresville

	Pretest		Posttest	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	3.9 (7)	3.6	5.7 (7)	4.8
Work Values	64.9 (7)	5.4		
Interest in Career Preparation	10.0 (7)	3.8		
Attitudes Toward Work	7.1 (7)	1.8	7.6 (7)	1.8
Knowledge of Work Values	78.3 (7)	10.2		
Decision Making	89.8 (5)	15.6		
Job Seeking/ Job Getting	24.4 (5)	1.7		
Career Awareness	24.0 (7)	4.8	26.3 (7)	3.4
Economic Awareness	4.9 (7)	1.1	4.4 (7)	1.3
Academic Perceptions	43.0 (2)	2.6	39.1 (2)	.71
Social/Personal Perceptions	59.1 (2)	2.4	54.3	1.8
Reading Achievement			47.2 (7)	10.1
Math Achievement			45.8 (7)	10.3

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Fallstaff

	Pretest		Posttest	
	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness	5.2 (116)	4.7	5.0 (114)	6.8
Work Values	65.3 (120)	5.8	63.1 (120)	7.0
Interest in Career Preparation	10.9 (120)	3.1	12.3 (120)	3.6
Attitudes Toward Work	8.4 (120)	1.5	8.3 (120)	1.5
Knowledge of Work Values	86.1 (114)	5.6	84.0 (75)	7.9
Decision Making	102.6 (111)	13.7	101.1 (76)	15.2
Job Seeking/ Job Getting	26.6 (114)	3.6	27.2 (101)	3.5
Career Awareness	26.4 (117)	3.7	27.2 (113)	3.0
Economic Awareness	4.9 (119)	0.9	4.5 (118)	1.1
Academic Perceptions	46.1 (33)	6.3	46.2 (33)	7.1
Social/Personal Perceptions	51.8 (33)	8.5	50.2 (33)	10.2
Reading Achievement				
Math Achievement				

Grade 11: Fallstaff

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
self-awareness	.893 (27, 29)	.201	.338	.226	11(.31),3(.30),19(.27),18(.25),5(.24)
	1.58C (27, 33)	.274	.315	.242	8(.29),27(.25),11(.25),23(.24),22(.24)
career preparation	.807 (27, 33)	.382	.409	.299	9(.29),8(.26),5(.21),21(.19),22(.17)
wards work	1.870 (27, 33)	.262	.285	.257	19(.23),18(.20),15(.18),8(.15),27(.14)
work values					10(-.37),9(-.33),4(-.22),8(.19),7(-.16)
ing					8(.26),4(-.25),5(.16),6(.15),2(-.15)
job getting	.282 (27, 18)	.215	.421	.205	1(-.31),3(.21),18(.20),8(.15),17(-.14)
ess	.507 (27, 29)	.381	.451	.284	19(.43),18(.39),3(.34),8(.33),22(.27)
reness	1.190 (27, 32)	.346	.384	.222	19(.23),27(.22),7(-.21),11(.19),4(-.19)
eptions					8(.60),24(.54),25(.51),12(.50),23(.48)
al perceptions					12(-.56),8(-.51),23(-.50),2(-.49),24(-.48)
vement					
nt					
	3.425 (27,21)	.480	.588	.228	
	1.600 (27,28)	.344	.492	.132	
	1.112 (27,33)	.253	.298	.318	
(1-10)	1.429 (27,29)	.300	.490	.148	
(11-20)	2.994 (27,33)	.434	.466	.321	
, Seven, Eight					
wth discriminant	1.433 (27,20)	.396	.453	.275	
wth discriminant	1.667 (27,31)	.340	.364	.358	

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Vocation Beach

	PRETEST		POSTTEST	
	X (N)	SD	X (N)	SD
Occupational Self-Awareness	0.2 (112)	7.3	3.0 (15)	5.9
Work Values	63.0 (15)	7.0	62.2 (119)	6.4
Interest in Career Preparation	6.8 (15)	1.3	10.9 (119)	3.1
Attitudes Toward Work	7.3 (123)	1.8	7.4 (120)	1.5
Knowledge of Work Values	79.0 (115)	8.7	75.8 (9)	11.1
Decision Making			96.2 (10)	15.6
Job Seeking/ Job Getting			24.3 (34)	3.3
Career Awareness	24.0 (116)	3.6	24.5 (80)	3.8
Economic Awareness	4.7 (118)	1.1	4.1 (66)	1.0
Academic Perceptions	50.3 (92)	10.3	49.6 (92)	9.4
Social/Personal Perceptions	51.3 (92)	9.5	50.0 (92)	10.3
Reading Achievement	39.6 (138)	9.7	40.8 (138)	9.5
Math Achievement	42.9 (138)	9.0	39.7 (138)	8.5

Grade 11: Vocation Beach

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					21(-.69),6(-.68),22(-.56),26(-.54),4(-.52)
Work values					18(.85),15(.83),14(.77),23(.74),22(.74)
Interest in career preparation					5(.76),6(.67),8(.64),18(.59),24(.53)
Attitudes towards work					21(-.23),26(-.18),5(-.17),20(-.17),9(-.15)
Knowledge of work values					
Decision making					
Job seeking/job getting					
Career awareness					18(.32),7(-.30),20(.30),19(.25),6(-.23)
Economic awareness					13(.33),14(-.25),16(.22),6(-.23),18(.20)
Academic perceptions					26(.26),5(.23),3(-.20),7(.18),8(-.18)
Social/personal perceptions					1(.33),21(.23),2(.17),12(.13),7(-.13)
Reading achievement	1.187 (27, 26)	.175	.364	.164	23(.21),7(-.20),9(-.18),26(-.16),3(.15)
Math achievement	1.088 (27, 26)	.218	.342	.227	7(-.24),11(.19),10(-.18),26(-.18),21(-.16)
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One	1.950 (27,15)	.380	.050	.272	
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Unique Domain

	Pretest		Posttest	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	1.0 (65)	6.6	1.5 (66)	9.0
Work Values	65.2 (69)	5.6	63.2 (67)	6.3
Interest in Career Preparation	11.2 (69)	3.4	11.7 (67)	3.0
Attitudes Toward Work	7.9 (69)	1.7	7.6 (67)	1.6
Knowledge of Work Values	81.1 (65)	6.8	73.8 (38)	11.6
Decision Making	99.9 (54)	12.1	93.6 (43)	14.0
Job Seeking/ Job Getting	24.3 (63)	3.6	24.4 (62)	3.2
Career Awareness	24.9 (63)	3.3	24.4 (67)	4.1
Economic Awareness	4.7 (69)	1.0	4.1 (66)	1.0
Academic Perceptions	48.7 (62)	9.7	49.7 (62)	10.4
Social/Personal Perceptions	54.0 (62)	7.6	52.2 (62)	9.6
Reading Achievement				
Math Achievement				

Grade 11: Unique Domain

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					8(-.39),2(-.35),12(-.34),10(-.31),14(-.31)
Work values					15(.35),9(.34),12(.34),7(.32),25(.24)
Interest in career preparation					11(.26),12(.22),18(.19),19(-.18),23(.16)
Atittudes towards work					2(-.32),14(-.26),15(-.25),10(-.22),26(.18)
Knowledge of work values					2(-.53),11(-.45),24(-.38),8(-.34),14(-.32)
Decision making					27(-.49),26(-.46),11(-.40),2(-.39),21(-.36)
Job seeking/job getting					27(-.36),5(-.26),3(.25),8(-.24),2(-.24)
Career awareness					11(-.33),2(-.32),27(-.29),8(-.26),10(-.23)
Economic awareness					2(-.36),21(-.24),11(-.24),7(-.19),10(-.19)
Academic perceptions					26(-.27),18(-.25),10(.21),15(-.17),17(-.16)
Social/personal perceptions					20(-.31),13(.20),4(-.18),27(.18),26(.17)
Reading achievement					
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome
Pre- and Posttest Scores

Grade 11: Mt. Exploration

	Pretest		Posttest	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	3.2 (302)	5.8	4.5 (247)	6.6
Work Values	66.4 (312)	6.2	65.1 (258)	7.0
Interest in Career Preparation	10.9 (312)	3.7	11.8 (258)	3.7
Attitudes Toward Work	8.0 (312)	1.8	8.0 (258)	1.5
Knowledge of Work Values	84.5 (296)	6.8	81.7 (79)	9.4
Decision Making	99.8 (282)	13.2	98.4 (173)	13.8
Job Seeking/ Job Getting	25.5 (300)	3.3	25.9 (209)	3.4
Career Awareness	25.8 (307)	3.7	26.9 (251)	3.0
Economic Awareness	4.8 (310)	1.0	4.7 (254)	1.0
Academic Perceptions	49.7 (251)	9.4	49.9 (251)	10.0
Social/Personal Perceptions	50.4 (251)	9.1	48.4 (251)	10.1
Reading Achievement				
Math Achievement				

Grade 11: Mt. Exploration

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.483 (27, 122)	.129	.215	.079	3(.22),5(.15),12(.15),7(-.14),23(.13)
Work values	.990 (27,133)	.091	.139	.109	21(.21),27(.17),11(.17),3(.17),25(.16)
Interest in career preparation	1.613 (27, 133)	.168	.220	.081	3(.35),27(.24),23(.22),5(.22),22(.20)
Atittudes towards work	.811 (27, 133)	.096	.119	.125	10(-.13),3(.13),2(-.12),18(.09),20(-.08)
Knowledge of work values					17(-.27),15(-.25),16(-.19),19(-.18),10(-.18)
Decision making	1.378 (27,63)	.199	.311	.103	5(.23),9(.22),21(.19),4(.17),7(-.15)
Job seeking/job getting	1.319 (27, 88)	.134	.246	.079	26(-.29),19(-.24),25(-.23),15(-.22),10(-.20)
Career awareness	1.763 (27, 126)	.147	.214	.151	26(-.18),15(-.15),9(-.15),18(.14),7(-.14)
Economic awareness	1.391 (27, 130)	.147	.177	.173	15(-.18),18(.17),7(-.10),14(-.09),27(.08)
Academic perceptions	2.301 (27, 128)	.149	.242	.160	15(.23),4(.17),25(.17),10(.15),14(.14)
Social/personal perceptions	1.534 (27, 128)	.134	.191	.154	19(.16),7(-.15),10(-.14),15(-.12),18(.12)
Reading achievement					
Math achievement					
Ohio, Part 1	1.381 (27,113)	.124	.197	.129	
Ohio, Part 2	2.372 (27,122)	.253	.295	.122	
PECE					
New Mexico One	.956 (27,133)	.087	.134	.115	
New Mexico Six (1-10)	1.218 (27,130)	.144	.172	.126	
New Mexico Six (11-20)	1.818 (27,133)	.188	.242	.079	
New Mexico Two, Seven, Eight	1.495 (27, 62)	.216	.320	.128	
Cognitive growth discriminant	1.724 (27,98)	.196	.267	.124	
Affective growth discriminant	1.357 (27,129)	.147	.186	.126	

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Prepton

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	3.9 (366)	5.6	4.9 (29)	3.9	6.0 (325)	5.4	7.5 (27)	3.4
Work Values	67.2 (403)	5.7	68.3 (32)	6.5	65.8 (400)	6.0	68.2 (32)	6.1
Interest in Career Preparation	11.5 (403)	4	11.31 (32)	4.0	12.3 (400)	3.4	12.0 (32)	3.6
Attitudes Toward Work	7.8 (403)	1.6	8.0 (32)	1.8	7.9 (400)	1.4	7.8 (32)	1.5
Knowledge of Work Values	84.7 (364)	7.1	85.8 (29)	4.5	81.7 (67)	8.7	84.6 (7)	4.0
Decision Making	108.3 (339)	10.3	110.4 (19)	5.7	108.9 (292)	10.6	110.0 (28)	5.8
Job Seeking/ Job Getting	25.8 (363)	4.0	24.4 (26)	2.8	26.8 (337)	3.7	24.5 (32)	3.1
Career Awareness	26.3 (394)	3.4	26.8 (30)	2.2	26.9 (391)	3.2	27.0 (31)	2.1
Economic Awareness	4.8 (386)	0.9	5.2 (30)	0.7	5.0 (361)	1.0	4.9 (28)	0.9
Academic Perceptions	48.3 (365)	9.1	51.1 (20)	9.9	47.6 (365)	9.3	47.1 (20)	10.1
Social/Personal Perceptions	52.8 (365)	8.3	50.6 (20)	10.8	52.2 (365)	9.0	52.5 (20)	10.9
Reading Achievement								
Math Achievement								

Grade 11: Prepton

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	2.770 (27, 188)	.126	.229	.109	1(-.21),9(-.21),25(-.20),13(-.19),24(-.18)
Work values	2.400 (27, 251)	.127	.183	.074	16(.23),27(.20),19(.16),18(.13),3(.13)
Interest in career preparation	2.700 (27, 251)	.133	.200	.072	22(.24),15(.22),6(.22),27(.22),8(.21)
Attitudes towards work	2.780 (27,251)	.166	.218	.040	16(.26),17(.21),9(-.17),23(.15),7(-.15)
Knowledge of work values					13(-.32),9(-.30),21(.26),19(.21),23(.21)
Decision making	1.480 (27, 149)	.062	.168	.076	16(.17),17(.16),6(.12),19(.11),22(-.11)
Job seeking/job getting	1.980 (27, 192)	.068	.196	.034	25(-.16),13(-.15),19(.13),20(.11),1(-.09)
Career awareness	2.370 (27, 240)	.094	.182	.068	17(.17),9(-.17),1(-.17),7(-.15),25(-.14)
Economic awareness	.880 (27, 216)	.078	.088	.100	9(-.13),13(-.10),7(-.10),18(-.10),4(-.09)
Academic perceptions	.390 (27,231)	.059	.078	.128	16(-.128),17(-.125),26(.109),15(-.105),2(-.092
Social/personal perceptions	.171 (27,231)	.012	.015	.102	17(.187),16(.168),8(.167),27(.160),11(.141)
Reading achievement					
Math achievement					
Ohio, Part 1	1.760 (27,220)	.072	.148	.081	
Ohio, Part 2	1.582 (27,178)	.147	.173	.090	
PECE					
New Mexico One	2.761 (27,251)	.133	.203	.074	
New Mexico Six (1-10)	1.735 (27,233)	.101	.146	.090	
New Mexico Six (11-20)	3.151 27,251)	.148	.225	.074	
New Mexico Two, Seven, Eight	1.621 (27,152)	.057	.174	.073	
Cognitive growth discriminant	2.665 (27, 184)	.151	.265	.032	
Affective growth discriminant	2.382 (27,233)	.135	.193	.074	

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Studytown

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness								
Work Values	66.3 (151)	6.2	64.3 (140)	5.7	66.2 (36)	8.4	68.0 (40)	5.4
Interest in Career Preparation	11.0 (151)	4.0	11.0 (140)	3.5	11.5 (37)	4.3	12.2 (40)	3.6
Attitudes Toward Work	7.9 (151)	1.7	7.8 (141)	1.4	7.9 (39)	1.4	7.9 (44)	1.4
Knowledge of Work Values								
Decision Making	105.1 (109)	11.1	101.5 (106)	13.8				
Job Seeking/ Job Getting								
Career Awareness								
Economic Awareness	4.7 (143)	1.0	4.8 (135)	1.0	4.6 (60)	1.0	5.0 (25)	1.0
Academic Perceptions			58.1 (7)	9.4			52.5 (7)	9.3
Social/Personal Perceptions			47.3 (7)	12.0			50.5 (7)	9.6
Reading Achievement								
Math Achievement								

Grade 11: Studytown

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					
Work values					5(-.36),7(.36),12(-.30),14(.24),8(.24)
Interest in career preparation					23(-.47),17(-.38),16(-.37),18(-.33),5(-.30)
Atittudes towards work					25(.32),10(.31),13(.30),2(.30),21(.30)
Knowledge of work values					
Decision making					
Job seeking/job getting					
Career awareness					
Economic awareness					20(.34),19(.27),16(-.23),7(.20),5(.20)
Academic perceptions					
Social/personal perceptions					
Reading achievement					
Math achievement					
Ohio, Part 1					
Ohio, Part 2					
PECE					
New Mexico One					
New Mexico Six (1-10)					
New Mexico Six (11-20)					
New Mexico Two, Seven, Eight					
Cognitive growth discriminant					
Affective growth discriminant					

Target Students' Learner Outcome
Pre- and Posttest Scores
Grade 11: Cognitive Camp

	Pretest		Posttest	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness				
Work Values				
Interest in Career Preparation				
Attitudes Toward Work				
Knowledge of Work Values				
Decision Making				
Job Seeking/ Job Getting				
Career Awareness	26.7 (6)	2.0	28.5 (6)	1.4
Economic Awareness	4.7 (6)	0.8	5.0 (6)	1.3
Academic Perceptions	50.9 (45)	9.6	48.5 (45)	9.2
Social/Personal Perceptions	46.6 (45)	11.8	49.0 (45)	10.9
Reading Achievement	47.8 (5)	6.9		
Math Achievement	47.1 (5)	7.5		

Grade 11: Cognitive Camp

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

nstructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
cupational self-awareness					
rk values					
terest in career preparation					
itudes towards work					
owledge of work values					
cision making					
b seeking/job getting					
reer awareness					
onomic awareness					
adumic perceptions					20(-.30),2(-.28) 25(.25),17(.24),3(-.23)
cial/personal perceptions					8(.46),2(.38),1(.33),6(.32),19(.29)
ading achievement					
th achievement					
io, Part 1					
io, Part 2					
CE					
w Mexico One					
w Mexico Six (1-10)					
w Mexico Six (11-20)					
w Mexico Two, Seven, Eight					
gnitive growth discriminant					
fective growth discriminant					

Target and Nontarget Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Better Springs

	Pretest				Posttest			
	Target		Nontarget		Target		Nontarget	
	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD	$\bar{X}$ (N)	SD
Occupational Self-Awareness	4.9 (114)	4.4	4.8 (133)	5.7	6.8 (123)	4.4	6.5 (134)	5.4
Work Values								
Interest in Career Preparation								
Attitudes Toward Work					8.0 (1)	0.0	6.0 (1)	0.0
Knowledge of Work Values	87.8 (121)	4.0	87.9 (139)	4.4	87.2 (26)	3.3	84.7 (26)	6.8
Decision Making								
Job Seeking/ Job Getting								
Career Awareness	26.7 (123)	3.9	27.6 (139)	2.6	28.3 (124)	2.2	28.1 (138)	2.1
Economic Awareness	4.8 (126)	1.0	4.8 (145)	0.9	4.9 (126)	1.0	4.8 (136)	9.5
Academic Perceptions								
Social/Personal Perceptions								
Reading Achievement								
Math Achievement								

Grade 11: Better Springs

Relationships of Learner Outcome Posttest Scores, Controlling
For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness	1.140 (27, 39)	.195	.286	.239	24(.25),14(.19),19(.16) ,18(.14),8(-.13)
Work values					
Interest in career preparation					
Attitudes towards work					
Knowledge of work values					4(-.77),1(-.61),10(-.57),21(.56),2(-.53)
Decision making					
Job seeking/job getting					
Career awareness	.782 (27, 48)	.181	.201	.309	16(.23),19(.19),18(.18),3(.14),17(.13)
Economic awareness	1.220 (27,52)	.290	.322	.153	16(.32),6(.25),18(.24),14(.21),19(.16)
Academic perceptions					
Social/personal perceptions					
Reading achievement					
Math achievement					
hio, Part 1	.849 (27,42)	.191	.257	.202	
hio, Part 2	.713 (27,37)	.217	.254	.219	
ECE					
ew Mexico One					
ew Mexico Six (1-10)					
ew Mexico Six (11-20)					
ew Mexico Two, Seven, Eight					
ognitive growth discriminant					
ffective growth discriminant					

Target Students' Learner Outcome Pre- and Posttest Scores

Grade 11: Career City

	Pretest		Posttest	
	X̄ (N)	SD	X̄ (N)	SD
Occupational Self-Awareness	3.7 (223)	5.6	5.1 (78)	6.4
Work Values	67.5 (228)	5.2	63.4 (226)	6.6
Interest in Career Preparation	9.5 (228)	3.3	11.4 (226)	3.3
Attitudes Toward Work	8.5 (228)	1.4	8.3 (228)	1.3
Knowledge of Work Values	87.3 (218)	4.0	82.3 (31)	7.4
Decision Making	107.0 (213)	10.0	100.6 (72)	15.4
Job Seeking/ Job Getting	27.6 (219)	3.0	25.7 (123)	2.3
Career Awareness	25.4 (222)	4.3	17.3 (195)	0.8
Economic Awareness	4.9 (226)	0.9	4.6 (141)	1.0
Academic Perceptions	50.3 (59)	11.5	48.1 (59)	10.5
Social/Personal Perceptions	49.2 (59)	11.2	51.3 (59)	10.8
Reading Achievement	56.2 (254)	8.9	55.4 (254)	11.0
Math Achievement	58.0 (254)	9.6	57.8 (254)	10.4

Grade 11: Career City

Relationships of Learner Outcome Posttest Scores, Controlling For Pretest Differences, with Exposure to Career Education Activities

Constructs	F(df)	Process: Prop. Outcome Variance	Process: Prop. Criterion Variance	Interaction: Prop. Outcome Variance	Key Activity Variables
Occupational self-awareness					1(-.22),12(-.19),27(-.18),11(-.17),18(.15)
Work values	4.220 (27, 76)	.307	.330	.161	16(.39),17(.36),6(.24),3(.24),18(.23)
Interest in career preparation	5.740 (27, 76)	.228	.257	.194	23(.32),22(.25),27(.19),26(.16),13(.14)
Attitudes towards work	5.230 (27, 78)	.293	.297	.161	6(.23),16(.20),8(.18),1[illegible](.13),25(.13)
Knowledge of work values					7(-.55),21(-.48),20(-.47),5(-.42),10(-.34)
Decision making					16(.36),10(-.30),25(-.26),26(-.19),7(-.19)
Job seeking/job getting	.621 (27, 21)	.229	.362	.220	2(.25),16(.22),6(.22),1[illegible].20),4(.19)
Career awareness	2.990 (27, 64)	.285	.313	.266	18(.26),16(.24),19(.22),26(.19),17(.18)
Economic awareness	1.900 (27, 38)	.292	.334	.190	7(-.23),10(-.18),18(.16),2(-.14),1(-.13)
Academic perceptions					16(-.41),10(-.33),11(-.32),9(-.32),17(-.30)
Social/personal perceptions					17(.38),16(.38),1(.37),10(.29),24(.29)
Reading achievement	.651 (27, 97)	.094	.129	.115	19(.18),17(.16),16(.15),24(.12),18(.12)
Math achievement	.865 (27, 97)	.105	.154	.143	26(-.12),18(.12),8(.11),5(-.10),11(-.10)
Ohio, Part 1	.528 (27,52)	.165	.165	.232	
Ohio, Part 2					
ECE					
New Mexico One	1.959 (27,77)	.310	.344	.140	
New Mexico Six (1-10)	1.335 (27,35)	.340	.374	.239	
New Mexico Six (11-20)	1.214 (27,75)	.215	.255	.137	
New Mexico Two, Seven, Eight					
Cognitive growth discriminant	.709 (27,32)	.237	.250	.315	
Affective growth discriminant	1.177 (27,44)	.286	.332	.179	